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RETROSPECTIVE ATTITUDE STUDIES OF PARENT-CHILD RELATIONS

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Many reviews of the literature and considerations of methodological problems in specific areas are published after considerable experimentation and at a time when interest in the field has lagged. This paper will attempt to anticipate problems of method in a newly developing research approach in order to contribute to maximal use of research energy in attacking the problems involved. The approach consists of administering attitude questionnaires to parents whose children differ in behavior. In studies to be considered it is indicated or implied that variation in the independent variable as measured by parental attitude measures has contributed in mediated or direct form to variation in the dependent variable or criterion measure of child behavior. In further discussion, the term criterion variable will be used to refer to measures of the behavior of children, whether such measures result from the use of experimental and control groups, or from measurements of a continuous variable in a single group.

Studies to be discussed are *post*dictive rather than *pre*dictive. The study design thus parallels the retrospective clinical case study. It might be called a "reverse leap-frog" design. Inferences from obtained differences in parental attitudes involve a backward extrapolation in time, conceptually "leaping over" the actual behavior of parents with the children. The nature of an earlier developmental process is inferred from data obtained at a later point in time. Accordingly it is difficult to assert that obtained differences between parental attitudes measured after the development of children reflect factors operating at the time the children were developing. On the other hand, obtained differences in attitudes between parent groups cannot be ignored. It is tempting simply to suggest longitudinal studies of the effects of measured parental attitudes on child development. However, the productivity of such cumbersome, slow-moving projects may be heavily dependent on the preliminary hypothesis development carried out most rapidly in the retrospective type of study.

Eleven published studies of the retrospective type are listed in one review of the literature (34). A limited informal survey of more recent

[1] National Institutes of Health, Public Health Service, U. S. Department of Health, Education and Welfare.

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studies involving parental attitudes revealed that the majority are retrospective and the volume considerable, 14 completed but not yet published and 62 planned or underway in 1957. Since the retrospective approach will have continuing importance as a source of new hypotheses in the field, it seems worthwhile to consider the circumstances which are likely to affect its contribution.

Methodology will be considered in the context of the substantive task of making inferences from the general type of data provided by the research design. The following problems will be considered: the problem of the influence of social context on attitude expressions, further problems which develop from attempts to cope with social context factors by item phrasing, problems of social context which indicate a need for special experimental populations and situations, problems emanating from the fact that attitudes may change over time, the problem of attitudes specific to a given child, and problems of linking attitudes to behavior. Since available texts on research design and statistics provide ample discussion of such topics as cross-validation and how to control the effects of basic demographic variables, this paper will be limited to less obvious difficulties which are generated by this specific research approach. Discussion will also be limited to the type of retrospective and cross-sectional studies which are within the capabilities of most investigators working in this area. Longitudinal approaches will be referred to only where necessary to an adequate discussion of issues involved.

Problems of Social Context

Studies of factors affecting conformity to social pressures and group norms have in general indicated that different measured attitudes can be elicited from the same subjects in different social situations and that an attitude can be modified by different relationships between a respondent and the individual to whom he is expressing an attitude (23, 26, 36). Gordon (16) has reported in the case of personality test items that preference for socially acceptable items is a very powerful factor even in a situation where no question of securing a job, promotion, or admission to a professional school was involved. That this general tendency to respond in what is perceived as the socially acceptable fashion is almost automatic and unthinking is further suggested by the studies of Ash and Abramson (1) on college students and Stouffer (40, p. 504) on inductees which show little or no effect of anonymity on attitude questionnaire response. Parental attitude measures are probably no exception. Since they may be altered readily by appropriate films or discussions (39), it seems likely that they may also be susceptible to social context factors. Freeman and Grayson (14) noted that many mothers of adult schizophrenics requested permission to take parental attitude questionnaires home with them in order to obtain help from relatives. This reaction in a literate parent sug-

gests, among other things, a desire to say the "right thing" in a testing situation. Sophistication in current child rearing theories is likely to contribute in some fashion to measured response as is shown in a mean correlation of —.27 between educational level and tendency to agree with the content of a 36-item questionnaire consisting largely of statements in opposition to such theories (34).

An investigator who has obtained significant differences in parental attitude scores between two well matched groups whose children show adjustment differences may maintain that the differences must not be due to social context factors since the social context of testing was presumably the same for both groups. This seems unlikely where parents of children with deviant adjustment constitute one of the groups since it assumes that the parent does not know that his child is deviant or will not connect the fact with the situation in which he is being asked to fill out a questionnaire dealing with child rearing practices. It can be maintained, however, that the difference between groups may be a reflection of a differential response to the situation in which the questionnaire was administered, and that this difference in response to a social situation is itself significant. Goldstein and Carr (15) suggest that the refusal or inability to answer a questionnaire, as shown to a significant extent by mothers of adult male catatonics, reflects a personality trait possibly important in the etiology of their son's personality development. In this case, however, the questionnaire and its content become less important than the experimental situation created by the attempt to administer a questionnaire. The meaning of the social context to the respondent thus becomes even more important when the investigator intends to interpret obtained differences in terms of social context.

Respondents may be unable to answer questionnaires in a way that is indicative of their spontaneous, day-to-day behavior with children for reasons other than social context. Investigators postulating unconscious factors in the perception of the meaning of attitude items or defense mechanisms which operate regardless of variations in the social context may object to grouping such factors under the heading of social context. The grouping is for expository purposes and such distinctions would not be germane to the discussion since efforts to cope with both types of variables have been largely the same.

Item-Phrasing Solutions to the Problem of Social Context

According to a content analysis (34) the more recent parental attitude questionnaires show a definite tendency to cope with the problem of social context primarily by providing the parent with items having content in opposition to current theories. Items with this type of content tended to discriminate between criterion groups better than items affirming such theories or using mere statements of fact. Items affirming existing theories

tended to have very low dispersions, the knowledge of such theories apparently being sufficiently general that most parents tend to agree, rather than vary, in choice of response options.

To reduce expressions of disagreement by parents the content in opposition to current theories is disguised by phrasing which makes the item either slightly vague, apparently aphoristic, or somewhat attractive by virtue of rationalizations provided. Examples of such items from Mark's study (30) are shown below. As is typical in the more recent questionnaires, the subject is to respond in categories varying from strong agreement to strong disagreement.

A good mother should shelter her child from life's little difficulties.
Too much affection will make a child a softie.
A devoted mother has no time for social life.

Examples of items which failed to achieve high discrimination and were rated as stated in agreement with current theories are as follows:

Childhood is the foundation period of a person's life.
A child should have freedom to develop a personality of his own.

If socially acceptable content may be equated with content stated in agreement with current theories, current item writing approaches in the field of parental attitudes may be placed in the context of findings relative to item phrasing in the broader field of attitude measurement. Rundquist (33) has summarized a large number of attitude studies showing that items with socially unacceptable content are more effective discriminators between criterion groups across a broad spectrum of age groups, types of item presentation, and test format. Gordon (16) has reported that the more unclear a personality test item which contains socially unacceptable content the more valid it is likely to be. Disguised or projective item phrasing may thus increase the discriminating power of the items containing socially unacceptable content. The latter are effective in and of themselves but may possibly be enhanced by vague or deceptive wording. For the purposes of this paper it will be sufficient to note that the tendency toward this type of phrasing and content constitutes one of the major attempts to cope with the problem of social context.

Problems Raised by Use of Vague or Devious Unacceptable Items

Interpretation of a single item is precarious. Basically, it is comparable to attempts to interpret a factor showing loading on only one test. McNemar (28) pointed out in criticizing single item opinion polling that percentage of agreement with a single opinion question can change drastically with minor changes in wording. Interpretation becomes still more hazardous when, as reflected in the above trend in phrasing parental attitude items,

we add the problem of determining whether the aphoristic quality of an item, its vagueness, the extent to which it embodies rationalizations, its lack of social acceptability, or some other factor is crucial. Interpretation of such items borders on interpretation of responses to ink blots. And yet, hypothesis development has had to be based on such interpretations of single items (14, 21) in the absence of more secure data. Accordingly, it is especially important for an investigator writing projective or vague items to define his concept with a demonstration of internal consistency in a group of items. Campbell (10) and Green (17) have indicated the logical necessity of such demonstrations in keeping with existing definitions of attitudes in terms of response consistency. Such scales or pools of homogeneous items should preferably contain items using different phrasing techniques. Scales for which internal consistency have been demonstrated have been reported but have not as yet been used extensively in retrospective studies (34, 44). Such scales at least render more plausible an investigator's efforts to link a concept with a measured attitude. Without such plausibility there is little interest in a failure to find results in the direction predicted from the hypotheses. The defect could exist at the "spade work" level of item writing rather than in the basic concepts.

A problem posed especially by high saturation of questionnaires with socially unacceptable content and the use of vague, ambiguous item phrasing is that of measuring response sets such as acquiescence, evasiveness, speed and guessing. Cronbach (11) has summarized evidence to indicate that such sets, which are most obtrusive in precisely the fixed category response situation used almost exclusively in parental attitude questionnaires, are maximized by stimulus situations which are unclear or ambiguous to the subject, are likely to change with different item content, and may reduce validity unless partialled out and used expressly to predict a criterion. Berg and Rapaport (6) have shown that response sets are present even where an imaginary questionnaire is administered under circumstances resembling an ESP experiment. Bass (2) has presented evidence to support the contention that three-fourths of the reliable variance in the F scale used extensively in studies of the authoritarian personality may be explained as an acquiescence set, only one-fourth being related to a content factor of authoritarianism. His finding is consistent with Stogdill's (38) report that there is a tendency in many parents to agree with attitude items having quite contradictory content.

Several possibilities exist for dealing with the problem of response sets in parental attitude questionnaires. Constructing items with directly contradictory content provides a check on the acquiescence set. This approach necessitates almost doubling the length of existing questionnaires and thus reduces the number of concepts which can be included. Another approach involves using forced choice formats, which have been found relatively free of response sets. In an informal experiment the author found that forced choice formats tended to generate much more serious rapport prob-

lems than those encountered with customary formats (discussed below). Another approach would permit use of existing questionnaires which provide several scores each based on a scale or pool of items (34, 44): the score for each scale for a given individual is expressed as a function of the individual's average and standard deviation for all scales. This procedure is described by Cronbach and Gleser (12) as a means of partialling level and dispersion out of profile measures to provide a pure measure of profile shape. The average of scores on all scales as described provides a measure of acquiescence and the standard deviation of scores on all scales a measure of variability for each subject.

A procedure such as this, which makes it possible to partial out but not preclude the operation of response sets, would seem desirable at the present, since measures of response sets in parents may be related to criterion measures of child behavior. This is an open question at present. Freeman and Grayson (14) reported that extremity and consistency of response scores failed to differentiate between two parent groups. On the other hand, Goldstein and Carr (15) report that a phenomenon very similar to response set, namely failure to answer questions, made it possible to distinguish between their criterion groups when responses to the parental attitude items as such did not. Investigators such as Guttman (18) and Elinson (13) have reported in the broader field of attitude measurement that direction of response may not be as important for many purposes as generalized intensity, the strength with which attitudes are manifested regardless of content. Further, many investigators use parental attitude scales as measures of personality (19, 21, 37) and thus would view with interest the relationship between evasiveness and tendency to check the response category "undecided" as mentioned by Cronbach (11). Also pertinent are the findings of Berg and Collier (5) that sets to accept extreme response categories in the Perceptual Reaction Test are related to personality measures such as confidence, suggestibility, and anxiety.

Investigators obtaining measures of response sets from existing questionnaires should keep in mind that sets such as acquiescence and variability may be specific to the kind of item being used. A parent conversant with the current popular literature on child rearing practices might show different response sets to items stated in agreement with, and items stated in opposition to, current theories. Berg (4) has reported that there is only a moderate correlation between response sets to verbal and spatial items in the Perceptual Reaction Test. The extent of variation of response sets relative to different kinds of parental attitude questionnaire content is not known at present.

In addition to the problem of response sets, concentration on socially unacceptable content in parental attitude items generates problems at the level of both theory and rapport with the subjects. One study has reported the necessity of using "rapport" scales in order to raise the level of satisfaction of sophisticated respondents who apparently did not feel that they could

adequately express their attitudes through responding to the content provided (34). Most serious is a probable loss in test efficiency reflected by lack of rapport with more sophisticated subjects. This may imply that the item preference values obtainable with the type of content widely used in parental attitude scales are poorly adjusted to the task of making discriminations between sophisticated subjects varying in true attitudes toward child rearing. It appears most likely that a desirable median difficulty level of .50 does not exist for many such questionnaires used with subjects at or above the high school level of education. Thus, problems of differentiating parent groups whose children show superior social or intellectual achievements will be difficult to pursue if a more adequate understanding of the success of the socially unacceptable items is not reached. For adequate exploration of the domain of parental attitudes it is important, as Kuder (25) has pointed out in the case of interest and personality inventories, that it be possible to develop, without distortion, a fairly reliable measure in any direction within the factor space represented. The need for experimental studies of item behavior similar to those carried out by Rundquist (33) and Gordon (16) seems acute in the field of parental attitude measurement. Such experimentation should focus among other things on the possibility of obtaining successful discrimination using concepts stated in agreement with existing concepts of child rearing and varying such factors as extremity of statement. Variation in social acceptance values and the accuracy of perception of current theories of child rearing (32, p. 414) should be studied further in different social classes.

Experimental Design Solutions to Problems of Social Context

A special problem of social context arises from the fact that many parents tested in retrospective parental attitude studies may have been reacting to the very fact that their children's behavior has been socially identified as superior or unusual, whether leadership or adjustment problems are involved. The attitude pattern which differentiates them from a control group may then include reflections of factors such as guilt or self-aggrandizement rather than a pattern linked to the developmental history of the child. Fortunately, this problem may be attacked fruitfully in at least two different ways. The investigator minimizes the influence of this factor by using attitude measures from parents whose children have not been socially identified as having adjustment problems, under circumstances where it appears unlikely that the parent is aware of the child's status. Studies in the nursery school setting seem to meet this requirement (31). In general, the possibilities for studies of this type in the nursery school setting appear promising since extensive ratings of child behavior are possible.

Opportunities for partialling out self-justifying attitudes also exist through selection of special control groups while retaining the basic retro-

spective study design. McFarland (27) in a replication of Mark's study (30) obtained a control group of mothers of nonschizophrenic individuals by requesting adult males receiving hospital treatment for physical ailments to contact their mothers for participation in the study. Mark obtained some members of his control group in this fashion, but many more from women's clubs and other organizations. McFarland could contrast the attitude patterns of two groups of mothers both having adult sons with health problems sufficiently severe to require hospitalization. This offers an improvement logically over the Mark design since both groups of mothers were presumably reacting at least to the fact of hospitalization of their sons.

The control group used by McFarland still does not permit a control over possible differential reaction to the fact of a son's mental illness. Contrasting parents of children showing different mental illnesses, however, permits a reduction in the possible contribution of this gross factor to obtained differences between criterion groups (15). There are many possibilities for control groups which permit control over guilt and other "reactive" effects. Contrasts may be made between mothers of children showing mental retardation, brain damage, somatic disorders, psychosomatic disorders, autism, or impulse control problems as the problem dictates. No one control group meets all logical requirements, but each permits a better approximation of differential attitude patterns which may have contributed in a primary way to the direction of development of the child.

Attitude Change Over Time

If investigators accept the notion that parental attitudes are changed as a result of living with children, or simply show spontaneous change over time, it becomes very difficult logically to relate developmental events in time segment A-B of the child's life to parental attitudes measured at time B or C. This problem is minimized, again, by carrying out studies on parents of children at lower age levels, particularly in the nursery school setting. However, many important adjustment characteristics do not emerge until later in life and there are no existing ways of linking early adjustment with such later characteristics. The investigator must either study the phenomenon retrospectively in its later form or not study it at all, there being no very secure means of selecting a group of parents whose children can be expected to show a high frequency of some behavior deviation on later follow-up, even if patience existed for the task of follow-up.

Two possible approaches are suggested. One is to isolate parental attitude domains which are relatively stable in different age cross-sections and restrict attitude measurement to these. This will be very difficult to do in the general field of attitudes. The Allport-Vernon Scale of Values and the Strong Vocational Interest Inventory showed much greater consistency over time than did several attitude scales in Kelly's (22) follow-up study of married couples. Attitudes toward rearing children showed 20-year retest

correlations of .15. Even assuming for purposes of discussion that there has been some improvement in tapping more stable child rearing attitudes in parents, an investigator primarily interested in working with measures which show stability over time may well consider the possibility of using interest and value measures obtained from parents, considering the impressive test-retest correlations of such measures from the same study by Kelly.

Although it would seem reasonable to assume that psychological growth, a cumulative process, would be most influenced by stable attitude structures in the parents, some reasons exist for considering an alternative viewpoint. Tietz (43) and others have pointed out the possibility that there may be "age-specific" parents, parents who meet the needs of children during one period of life but fail to assist their growth in some later phase. Such individuals may in effect lack the flexibility to grow as a parent along with the child. It seems likely that other parents may show important attitude shifts over time but change predictably, so that the child has been exposed to an attitude channel over time, each point belonging to an over-all component process. It may be that there is a natural history of attitude change in parents with different kinds of personality structures and that knowing these attitude changes an attitude channel can be estimated, much as has been done for the prediction of physical growth. According to this view, attitude differences between two groups of parents could be considered meaningfully related to the adjustment of the children, even though such differences would only represent terminal phases of the process which had changed over time. The problem would then be to locate and identify the early and in-between points in the process. Approximations to these attitude changes over time might be obtained by cross-sectional or accelerated longitudinal methods (3) prior to full scale longitudinal studies.

Parent-Child Attitude Specificity

It seems almost unnecessary to point out that parents are capable of reacting quite differently to various children in the same family. Reactions to such a gross factor as sex differences have been noted (20). Favoritism is very frequently observed in families as well as many other special roles accorded to children. Thomas (42), Tietze (43), and many others have asserted that mothers of schizophrenic individuals had quite different relationships with their nonschizophrenic children from an early point in time. The type of retrospective study discussed in this paper very frequently involves parents who have two or more children, and yet the instrument which measures the parents' attitudes does not provide any indication of the particular child to whom the attitudes refer. This failure to determine the referent of the attitude would seem to lead to at least two major consequences. First of all, differences between criterion groups will be obscured. The attitudes of mothers in groups being contrasted may reflect orientations

toward a child other than the particular child from the family whose behavior led to assignment of the mother to a given criterion group. Investigators who obtain significant differences between groups may maintain that their results were obtained in spite of rather than because of this factor. On the other hand, many more differences might have emerged had this factor been controlled and the study is correspondingly lacking in precision. Secondly, preoccupation with this type of study neglects the fact that an adequate assessment of the general impact of parents on all of the children in their family has not been carried out. The particular child selected from the family for study may provide misleading information on the behavior characteristics common to all children in the family and differentiating the family from other families.

To overcome the logical absurdity of having nonspecific parental attitude measures in a situation where the criterion measure invariably involves a single child from a family, certain measures of parental orientations not now found in attitude scales may be necessary. Scales for measuring differences in attitudes toward rearing female and male children may be useful. New variance may be brought into the format by sets to respond in accordance with attitudes toward specific children. Parents who vary greatly in orientations toward different children may be manifesting either a laudable sensitivity to the needs of different children, or be overinvolved and working through internal conflicts with a particular child. Parents who have reared two or more disturbed children but with qualitatively different relationships could be contrasted attitudinally with suitable control groups to study this problem retrospectively. It should be noted, however, that a testing procedure which links attitude expressions in the parent's mind to specific children has some likelihood of marshalling self-justifying attitudes. It may be desirable to use sets to respond in terms of different sexes, ages, and personalities of children to help identify the probable referent of their attitude expressions without eliciting self-justifying attitudes. Another possibility is to make studies of one-child families or of very young families prior to the birth of a second child.

Closely related to the subject of parent-child attitude specificity is the question of the feed-back effects on the parent of living with a particular kind of child. At first glance this question would seem to require longitudinal studies. It is noteworthy that interesting data on this question have been provided by retrospective studies in which parents of children with congenitally related behavior problems are contrasted with parents of normal children. Mann (29) administered parental attitude questionnaires to mothers of children with cerebral palsy and a closely matched group of mothers of normal children. Many of the large number of significant differences found between the groups pointed to the possible operation of a reactive factor in parental attitudes when measured retrospectively. Apparently the reaction of a parent to the problems of child rearing posed by a handicapped child may lead to manifest attitudes resembling those which when

manifested by the mother of a schizophrenic or delinquent child have been assumed to indicate causal significance (21). Klebanoff (24) has reported that it is possible to obtain significant differences in attitudes between mothers of normal children and mothers of schizophrenic children, or between mothers of normal children and mothers of mentally retarded or brain damaged children. It is not possible in his study, however, to obtain significant differences between mothers of schizophrenic children and mothers of mentally retarded or brain damaged children. These studies suggest a number of changes in the attitudes of the mothers themselves, in the nature of the marital relationship, and in the relationship of the home to the community which may be expected to result from rearing a congenitally handicapped child. The methodological significance of the above studies lies in the fact that they provide findings which serve as a check on the reports of other retrospective studies which have not taken feed-back factors into consideration. Longitudinal studies of concepts such as the "schizophrenigenic mother" would clearly seem premature when data even from retrospective studies cast doubt on the basic formulations.

Further clarification of feed-back effects may be expected by contrasting parents of normal children with parents of children showing other behavior problems linked to congenital disorders. This approach need not be limited to behavior problems linked to congenital factors, however. Contrasts may also be made between attitudes of parents whose adopted children showed differences in behavior prior to adoption.

Direct Studies of Attitude-Behavior Linkage

In order to clarify further relations between parental attitudes and behavior of children it would seem vital to study one major link in the process, that of the relation between parental attitudes and what parents actually do with children. An apparently simple and straightforward approach to this problem would be to measure the attitudes of parents and then study their behavior with children, preferably in the home, but possibly also in such settings as cooperative nursery schools and neighborhoods. This type of study can be carried out just as readily as a retrospective study, as far as time considerations are concerned, since both involve obtaining measurements in a single cross-section of time. Accordingly, it is surprising at first glance that no direct studies of relations between measured parental attitudes and actual behavior of parents with children can be located in the literature. This lack of studies, however, seems much more understandable when one explores in more detail just one example of the problem of obtaining even reasonably adequate observations of parent behavior. It is immediately obvious in the case of observations in the home that it will be difficult to penetrate social facade, and that limited behavior samples may not bring low frequency but highly significant critical incidents under observation. Most home visits are not made during two periods

of the day when common sense observations would suggest that a large number of critical incidents occur. These are the periods immediately prior to dinner and bedtime for the children. Home visits as customarily limited in number and appropriateness of timing provide useful estimates of the child rearing climate of the home, but perhaps no better estimates than an interview with the parents in some setting other than the home. The home remains for all practical purposes a "little black box"; parental attitude measures, home visits, and interviews with parents and children represent some ways of obtaining estimates of its internal processes; the behavior of children in community facilities is a readily observable output. It is easy to observe children but difficult to observe parents and children in the home.

The importance of the above type of study should not be minimized in view of the difficulties. On the other hand, there should be some consideration of a more fragmentary approach to the same problem, studies in which parental attitudes are related to actual behavior of a parent with other adults. There are several reasons why this kind of study may assist the development of the field: spontaneous moment-to-moment behavior of parents with children in the home is relatively inaccessible; the complexity of attitude structure and its linkage to behavior requires comprehensive studies which current assessment programs worked out for adults can provide; finally, in view of the apparent instability of measured attitudes cited in the study by Kelly (22) it may become increasingly important to find ways of linking verbalized attitudes to personality traits which have stability. In this way a mediating set of propositions linking attitudes to adult personality may be developed. This in istelf is an ambitious objective from a theoretical standpoint, without regard for the next necessary step of providing a set of propositions which will mediate between such a network and actual behavior with children.

The complexity of relationships in this area is suggested by the fact that one factor analysis of 24 attitude measures in a very homogeneous population of unmarried females resulted in the identification of five orthogonal factors (35). In the general field of attitude measurement Bray (9) has reported complex interactions between attitude and personality scores and actual behavior of adults in a situation involving interracial behavior. Block (7), reporting data obtained from a comprehensive assessment of a population of male army officers who were also parents, found that expressed parental attitudes of restrictiveness were related to ratings of submissiveness, suggestibility, conformity, indecisiveness, and ineffectuality received by the individuals when observed in interactions with other adults. These studies suggest that a simple isomorphic projection of attitude concepts into behavior will be found only occasionally. Not enough is known about the structure of attitudes in this area with different population groups to permit an investigator to single out one attitude, test for a single behavioral referent, and attribute significance to a negative result

in the event that attitude-behavior correspondence is not found. This type of result will only be of interest to investigators who take attitude scale labels very seriously and regard behavior as simply linked thereto. Again, as in the problem of interpreting the meaning of responses to items, loss of research energy may simply result from negative results obtained in studies which have defined attitude or behavior variables without a convincingly adequate battery of measures. Adequate sampling of both domains need not imply unimaginative "fishing expeditions." Experimental procedures merely need to be linked to independent and dependent variables which are defined in multivariate terms. This is well within the possibilities of existing techniques such as analysis of variance designs for testing pattern differences between groups (8). Assessment programs for adults provide the type of data which are required, with the addition of parental attitude measures to testing batteries. There are, of course, many other populations of adults made accessible to behavior studies but not seen at present as having additional psychological importance because they are also parents.

Summary

This paper has reviewed problems of method emanating from current use of attitude questionnaires in a rapidly developing field of investigation typically involving testing for attitude differences between parents of children showing different kinds of behavior. The retrospective design offers a means of generating new hypotheses and carrying out preliminary tests prior to long term studies. The design provides equivocal data on developmental hypotheses due to the fact that parental attitudes as manifest may be subject to social context factors such as parental needs for self-justification, may have changed over time, may have behavioral impact on different children in quite different ways, and may be linked to actual behavior in very complex fashion. Many of these problems can be handled by refinements in the retrospective design itself.

Recent use of the projective item to cope with social context factors creates problems in that the items are more difficult to interpret and response sets maximized. Demonstration of internal consistency becomes especially important. Response sets which are maximized by such items in the usual formats may be controlled or partialled out by using new scoring techniques on existing questionnaires, writing scales with contradictory content, or using forced choice formats. The use of items which are vague and stated in opposition to socially acceptable or expert views on child rearing poses problems in rapport and discrimination among subjects at higher educational levels. Basic research on item behavior is important to further development of this approach.

Self-justifying attitudes in the respondent can be minimized by using parents of children who vary in behavior but have not been socially identified, either by stigma or praise, as showing unusual adjustment. Various

control groups can be used which permit partialling out specific kinds of self-justifying attitudes likely in parents of deviant children.

Lack of stability of measured parental attitudes over time is a less critical problem of studying adjustment of young children. Studies of stable attitude areas or the use of other measurement approaches may be necessary to provide meaningful measures of parental orientations to which a child is exposed over long time periods.

The problem of parent-child attitude specificity need not be considered by an investigator interested primarily in generalized family climate, but it is a crucial problem for prediction and for the development of a more sharply focused theory. Special scales and instructions to the respondent may be needed to provide data in this area.

No direct studies have been carried out on the relation between parental attitudes measured by questionnaires and the actual behavior of parents with children. Pending solution of current problems in obtaining accurate information on spontaneous day-to-day behavior of parents with children, studies of the relation of parental attitudes to behavior with other adults may help develop an intermediate set of propositions linking parental attitudes and parental personality. Such studies may assist in ordering the complexity of problems involved in linking attitudes to actual behavior with children, and may provide data on more stable characteristics of parents which conceivably have long term cumulative effects on the behavior of children.

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DEVELOPMENT OF A PARENTAL ATTITUDE RESEARCH INSTRUMENT[1]

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This paper will present (a) the thesis that parental attitudes toward child-rearing and the family life are an important influence in the personality development of the child, (b) a review of objective studies of parental attitudes toward child rearing, (c) a rationale for the development of homogeneous measures of concepts concerning parental attitudes and a description of the process of concept development, (d) the results of an analysis of item and scale efficiency, and (e) correlations of the attitude measures with education.

The current extensive interest in the influence of the parent-child relationship upon the personality development of the child arose primarily through psychotherapeutic work with adults and the clinical studies of families by child guidance clinics. Many of the earlier studies have been reviewed by Symonds (37) and Radke (31). Orlansky's review (29) of literature relevant to the hypothesis that types of infant care determine personality structure suggested the need for an emphasis upon the total pattern of experiences of children rather than upon specific infant care practices in the study of environmental influences upon personality development. Symonds (37) also concluded that the quality of the parent-child relationship is of crucial importance. Mead's theory of the genesis of the self is a concise statement of this point of view: "The individual experiences himself as such, not directly, but only indirectly, from the particular standpoints of other individual members of the same social group, or from

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the generalized standpoint of the social group as a whole to which he belongs" (26, p. 138). Since the most extensive and intensive social interactions of the child during crucial developmental stages occur within the family and especially with the mother, the mother-child relationship would be of major importance in personality development.

Recent trends in personality theory provide a rationale for the conceptualization and quantification of maternal attitudes. Bronfenbrenner (6) has noted a convergence upon a set of related concepts which imply a tendency to orient and act with respect to objects. In action theory these tendencies have been called need-dispositions (30) while similar concepts have variously been called dispositions (1), dispositional tendencies (17), needs (28), belief-value matrices (38), and dynamic systems (18). These concepts include emotional, cognitive, and motivational elements and imply stable genotypical personality characteristics. Let us assume that such need-dispositions are related to the type of relationship which a woman develops with her child. Development of measures of those components of her personality which are relevant to her role as a mother would permit prediction of her behavior with her child and the future personality adjustment of the child. The hypothesis that such need-dispositions can to some degree be determined by measuring the attitudes of parents toward child-rearing and the family is the motivation for this study.

The importance of maternal attitudes to the development of the child has been generally accepted. Bettelheim (3) has pointed out that if parents who rigidly attempt to impose accelerated developmental goals upon children are told that early toilet-training is undesirable they may delay such training but may continue to accelerate the child in talking, reading, and other important areas of development. This example illustrates that an underlying attitude may influence a great variety of parent behaviors. Many researchers have implicitly assumed that objective attitude measures could give valid information on such parental attitudes. The potential usefulness of such objective measures justifies their development. When such measures are available, their construct validity can be objectively determined.

If objective attitude measures can be demonstrated to be indices of certain patterns of maternal behavior, attitude measurement would be a valuable supplement to interview and observation as methods for the study of maternal behavior. The Maccobys' discussion of the relative merits of interviews and questionnaires is relevant to the question of validity; they state: "It has been widely assumed that the interview is superior to the questionnaire in many ways, and should be used where resources permit. Certainly the interview *must* be used at exploratory stages; for the later stages of research, the meager evidence so far available does not support the superiority of the interview. . . . It is entirely possible that the interview is superior for some subject matters, the questionnaire for others" (21, p. 483). If methods for coding interviews were well developed, ample time

for thorough interviews were available, and well trained interviewers could be obtained, it seems likely that interviews would give more valid information. However, the speed, efficiency and objectivity of the questionnaire make it a desirable method at this stage of research on parent-child relationships.

Review of Previous Studies

Turning to the empirical evidence for the validity of this approach to the study of parent-child relationships, we find a number of researches which have studied relationships between parental attitudes and the personality adjustment of children. Stogdill (36) was among the first to attempt the objective measurement of parental attitudes with two questionnaires which measured attitudes toward parental control and attitudes toward social behavior of children. Read (32) studied the relationship of these variables with a behavior inventory for nursery school children by comparing the responses of 32 parents who were tested with these measures with the rated behavior of their 20 children. Although she concluded that liberalism in views on parental control is related to child behavior, correlations between scores on parental attitude scales and summarized ratings were not significant when computed from tabular data presented in the research report. Anderson (2) reported a study completed by Miles (27) in which it was found that parents' attitudes are related to the leadership status and social acceptance of the child by the school group. He reported that subscales measuring overprotection, dominance by the parent, and encouragement of social development are related to the child's social adjustment. The effect of a significant difference in education between parent groups was not partialled out. Shoben (35) administered an inventory of attitudes toward child-rearing to 50 mothers of children in mental hygiene clinics and juvenile courts and 50 mothers of normal children. Significant correlations between three parental attitude scales and children's adjustment were shown on cross-validation with comparable groups. Scales measuring maternal dominance, possessiveness, and ignoring were approximately equal in power of differentiation. Partial correlations computed from data available in the published report indicate that a significant difference in educational level between parents of problem and nonproblem children did not materially affect the validity coefficients obtained.

Radke (31) constructed scales of parental attitudes for the areas of autocratic or democratic control of the child, amount and area of restrictions on the child, amount of freedom, severity or mildness of punishment, rapport between parent and child, the relative responsibility of the parents for the child's discipline, and sibling compatibility or incompatibility. No reliabilities for these scales were given but the intercorrelations of the measures were low. Radke stated that relationships between these home atmosphere scales and child behavior ratings by preschool teachers sug-

gested that unfavorable conduct of children is related to autocratic, restrictive, and severe discipline. These conclusions were based on finding 11 differences significant at or beyond the .05 level, where seven would be expected by chance, in 140 comparisons of 20 different behavior ratings of preschool children and seven attitude scales administered to their parents. The extreme homogeneity of the group of parents on education and other characteristics may have operated to depress relationships.

Mark (25) assembled items which seemed relevant to the concept of the schizoprenogenic mother and administered them to 100 mothers of hospitalized schizophrenics and 100 mothers of controls who were matched for age, religion, education, socioeconomic status, and age of their sons. He found that 67 of the 139 items differentiated the groups beyond the .10 level of confidence. A replication of this study by McFarland (23) failed to find significant differences between mothers of normals and of schizophrenics. Computations based on data available from both the Mark and McFarland studies indicate that the number of items differentiating the two populations of mothers of schizophrenics was significantly greater than expected on a chance basis, while the differences between the mothers of the nonschizophrenic individuals in both studies were close to the number expected on a chance basis. Freeman and Grayson (10) measured the attitudes of 50 mothers of schizophrenics and 50 mothers of normals. They report that the possessive and unclassified groups of items from the Shoben inventory (35) differentiated their groups at the .05 level of confidence although the dominating and ignoring subscales failed to reach that level. Identifying data relative to age, religion, education, or socioeconomic level were not obtained for mothers in the control group who were contacted by volunteer students, nurses and aides; hence, it is not possible to evaluate the extent to which educational or other differences contributed to the differences obtained. Harris, Gough, and Martin (13) also tested the relationship between a priori scales which measured authoritarianism, permissiveness, parent-child integration, parental rigidity, and good judgment (the responses judged by the writers to be most desirable) and an 18-item attitude scale toward Negroes which was given to the children of these parents. The number of items differentiating high and low prejudice groups differed only slightly from what would be expected by chance at the significance levels cited. Empirical parental attitude scales constructed from the data were not cross-validated.

Shapiro (34) conducted a study of correlates of parental attitudes on child-rearing with other attitudes and objective measures on parents. He found that attitude items which approve the free expression of a child's desires are related to objective attitude measures of "Radicalism" with parents who are less restrictive being more radical in their political opinions. Items which he designated as "Analytical" dealing with anal, oral, and sibling-rivalry situations were less related to these attitudes. He concluded that attitudes toward child-rearing are related to other social attitudes and

that different types of parental attitude items are differentially related to other personality measures of the parent. Block (4), in a more comprehensive study of restrictive attitudes toward child-rearing, found a scale of paternal restrictiveness significantly correlated with 122 of 498 other tests and measures which were included in a personality assessment of 100 military officers. Paternal restrictiveness was also related to Q-sort personality evaluations which were made by eight staff psychologists who had observed the subjects during the procedures of the assessment program. A comparison of the 20 most restrictive and the 20 most permissive subjects revealed that "Restrictive fathers tend to be constricted, submissive, suggestible individuals with little self-assurance. Permissive fathers were evaluated as self-reliant, ascendant, and functioning effectively. . . ." Restrictive attitudes were also positively related to measures of ethnocentricism and fascism.

Goldstein and Carr (11), using some items previously used by Mark, administered a 56-item questionnaire to 34 mothers of adult males diagnosed as catatonic and 26 mothers of adult males diagnosed as paranoid and found that the number of differentiating items did not exceed chance expectations. Mothers of catatonics differed significantly in reports of inability to complete the questionnaire and in the number of answers omitted.

Croty (8) failed to find any correlations in excess of .25 between measurements of achievement motivation, obtained from a psychological insight questionnaire administered to 95 male high school students, and attitude measures obtained from their mothers. The attitude questionnaire, Final Form IV of the Parental Attitude Research Instrument (PARI), which is reported in this paper, was mailed to the mothers and a return of 78 per cent was obtained.

Klebanoff (16) administered Form IV of PARI to 15 mothers of schizophrenic children, 15 mothers of retarded or brain injured children, and 26 mothers of normal children. Significant differences in scales related to an overpossessiveness factor appeared between mothers of normals and mothers of schizophrenics as well as between mothers of normals and mothers of retarded or brain injured children. Differences remained after statistical control of education differences between groups. No differences could be demonstrated between mothers of schizophrenic children and mothers of mentally retarded or brain damaged children on factor scores, but differences between groups on individual scales were not tested.

Mann (24) also administered Final Form IV of PARI as well as questionnaires developed by Shoben (35) and Mark (25) to mothers of children with cerebral palsy and closely matched mothers of normal children. Mothers of normals scored significantly higher on the Ignoring scale from Shoben, but differences on the Possessive and Dominant scales were not significant. Mothers of children with cerebral palsy scored significantly higher (showed more agreement) on the PARI scales Seclusiveness, Strictness, Intrusiveness, Acceleration, Encouraging Verbalization, Equalitarian-

ism, and Comradeship and Sharing. Mothers of normals scored significantly higher on Marital Conflict, Irritability, Rejection of the Homemaking Role, and Avoidance of Communication. Eleven of the 23 PARI scales yielded differences significant at or beyond the .05 level.

This review of studies of parental attitudes toward child-rearing reveals great interest in the hypothesis that objectively measured attitudes toward child-rearing are significantly related to personality development of children. Most of the studies quoted here are interpreted by their authors as supporting the hypothesis. Despite this consensus the research findings do not seem to be conclusive due to problems of matching experimental and control groups (10, 35), the use of ad hoc scales without adequate test development (31), the attribution of significance to a small number of items out of a larger group under circumstances where such items might well have reflected chance relationships (10), the marginal significance of the findings of several studies (10, 13, 31, 32), as well as the general absence of cross-validation of findings of marginal significance.

Several of the studies reviewed, as well as a study by Wiley (40), have developed measures of attitude concepts such as parental dominance, control, or restrictiveness; possessiveness; ignoring; and parent-child rapport or integration. The conceptual schemes have often been too limited, concept definition has often been too vague, or adequate test development has been neglected. The review of the literature suggested a need for the development of a comprehensive conceptualization and quantification of this domain which would provide a research instrument for future studies.

Conceptual Analysis of Parental Attitudes

Both clinical studies, in which various syndromes of parental attitudes have been related to differential personality development of children, and the statistical theory of differentiation and prediction suggest the need for development of measures of specific attitude concepts composed of homogeneous groups of items. Theoretically, such an inventory would be more useful than a test composed of individual items or one which would give only one score of pathogenicity of parental attitude. This opinion is supported by Holzinger's statement ". . . a single average as a complete summarization is justified only if the data are of rank one, that is, if only one common factor is involved" (14). Cronbach (7) also suggests that it is often advisable to obtain less reliable measures of a number of relevant variables containing specific variance rather than to investigate a limited number of very reliably measured variables. Brogden (5) has demonstrated that differentiation between groups can be significantly increased by using several predictors which are independently related to a criterion even if the predictors correlate as much as .80 with one another. Guttman's (12) criticisms of heterogeneous composite scores also suggest that the use of

only one composite score in the area of parental attitudes would tend to reduce differentiating power of a parental attitude research instrument and would obscure interpretation of results.

With these considerations in mind a conceptual analysis of the domain of parental attitudes was carried out as a basis for developing measures of attitudes. The relatively heavy saturation of statistically significant items in the studies by Mark (25) and Shoben (35) prompted sorting of their item pools by three clinical psychologists into subscales or groups of items which seemed psychologically homogeneous. In conference these conceptual analyses were discussed and a group decision was made to use the concepts given in Table 1. This conceptual scheme was used to classify all items of the two studies into one of the categories given. This analysis, although based upon varying numbers of items in the various categories, strongly suggested that some categories have higher discriminating power than others.

It also became evident, in the process of sorting, that items which make what seem to be either purely factual statements or which state attitudes

TABLE 1

CONCEPTUAL ANALYSIS OF ITEMS FROM MARK AND SHOBEN STUDIES

	No. of Items Differentiating Beyond .05 Level of Significance		No. of Items Not Differentiating		Per Cent of Items Differentiating
Parental Attitudes	*Mark's Study*	*Shoben's Study*	*Mark's Study*	*Shoben's Study*	*Combined*
Strictness	3	6	0	0	100
Intrusiveness	3	2	0	0	100
Martyrdom	2	1	0	0	100
Breaking the Will	2	5	1	0	88
Infantilization	6	5	2	0	87
Deification	6	10	4	0	80
Suppression of Aggression	1	2	1	0	75
Child-dominated Home	1	9	0	4	71
Nonpunishment	3	2	2	0	71
Suppression of Sexuality	6	4	1	3	71
Ignoring the Child	4	5	4	2	60
Avoidance of Tenderness	3	0	1	1	60
Absolute Authority of Parent	2	13	7	5	56
Social Isolation of Child	2	6	5	3	50
Acceleration	4	1	6	0	45
Statement of Fact	0	0	8	6	00
Expression of Positive Attitude	0	0	4	14	00
Unclassified Items	19	14	26	25	39

that would be generally endorsed by psychologists as expressing approved attitudes toward child-rearing do not differentiate effectively between parents of normals and parents of maladjusted children. This is in keeping with the report of Stogdill (36) who noted that often parents will agree with apparently contradictory attitudes if one statement expresses what appears to be a healthy attitude while the other states its converse. Harris, Gough, and Martin (13) also report that items stating healthy attitudes are typically poor discriminators. We found that scales which state approved attitudes toward child-rearing typically have very poor reliabilities because there is a strong tendency for all persons to agree. As a result there is little variability and poor discrimination on so-called healthy scales.

This finding led us, in constructing a set of scales for this domain, to concentrate our efforts upon the development of the more differentiating scales which state attitudes contrary to the usually approved child-rearing opinions. It was soon found that tests composed entirely of such scales left many mothers very dissatisfied. They frequently expressed the feeling that they did not see any items with which they could agree and therefore could not indicate their own ideas. To correct this we included in our own inventory a number of scales which we should expect, from previous studies, to have relatively low reliabilities and poor discrimination. These so-called "Rapport" scales are Equalitarianism, Expression of Affection, Comradeship and Sharing, Encouraging Verbalization, and Autonomy of the Child.

Our procedure in developing additional scales was as follows. After developing a concept on the basis of theory or formulating a concept from the writings of others, we attempted an operational definition by writing items designed to measure the concept. Scales which were thus developed were tried out in short exploratory forms on samples of 25 mothers. Items were eliminated if they did not reveal variation in attitudes or did not vary with other items which were used to define the scale. Promising items were noted, and new items were written based upon hypotheses about the successful items. Usually two or three successive trial forms, each of which utilized the insights derived from previous trial forms, were used in developing an item pool which was then standardized on samples of 100. This procedure permitted a process of hypothesis development and testing which maximized the amount of new information which could be used in developing an effective item pool, and did not impose statistical rigor at the level of hypothesis formation. Use of successive samples, and confirmation of small sample work with larger samples in the final forms, supported the hypothesis that this process resulted in improvement in operational definition of the concepts.

The results of this sequential experimentation compared with results which would have been obtained by a simple elimination of items from an original item pool is shown in the development of the scale Harsh Pun-

ishment. The reliability or internal consistency of the original pool of 10 items for the scale Harsh Punishment was .12, which could have been improved to the level of .15 by elimination of four items. However, by writing new items to follow up promising leads this scale was finally developed into an eight-item form with a reliability of .82. Improvements in scale reliability were frequently rather dramatic following detection of the psychological basis of the success of discriminating items.

The selection of concepts for development was based upon a search of the literature for hypotheses as to which areas would give additional information relevant to parent-child relationships. As a result of the hypothesis that information on marital adjustment would assist greatly in understanding the home environment of the child, several scales were developed which measured relevant concepts. The scale Marital Conflict contains items which were intended to reveal the existence of tensions indirectly through obtaining the respondents' judgments about how much quarreling and dissension might be expected in marriages in general. The scale Rejection of the Homemaking Role contains items which state the unhappiness of a woman at being shut up in a home, and her dissatisfaction with the duties of caring for the home and children. The scale Irritability was developed around items which indicate that children "get on a woman's nerves" and that any woman would "blow her top" frequently in the difficult job of managing a home. This scale may be related to several sources of tension but it seems feasible that it would also reflect tensions in the marital relationship. The scale Inconsiderateness of the Husband contains items which state how inconsiderate husbands in general are. It is intended to permit projection of feeling about the spouse. Ascendancy of the Mother, which measures the extent to which the woman plans to dominate the family, was also developed to investigate a possible source of marital conflict.

The two scales, Encouraging Verbalization and Avoidance of Communication, were written to determine whether the parent would permit or encourage the child to talk about his anxieties, conflicts, hostilities, and disagreements with parental policies. Ignoring the Baby was designed to determine how much affection and attention the mother thought was appropriate for the care of the infant. These scales which measure attitudes toward communication and toward care of the infant hopefully should measure the warmth and permissiveness of the parent-child relationship. The scale Fear of Harming the Baby was developed out of interest in clinical reports of the eruption of unconscious hostile feelings toward their infants in disturbed mothers. Seclusion of the Mother was designed to measure the social adjustment of the mother, since it would presumably influence the socialization of the child. Dependency of the Mother is an attempt to determine the extent to which the mother looks to others for security and support. Fostering Dependency was designed to measure another aspect of overprotection or overpossessiveness. Harsh Punishment

attempts to determine the degree to which the mother feels punishment is an effective method of influencing and controlling children. Excluding Outside Influences, which is designed to measure family ethnocentrism, may be related to parental control and authoritarian attitudes.

Abdication of the Parental Role reflects an attitude that parents can do relatively little with children and that most parental efforts are wasted. This scale, with Rejection of the Homemaking Role and Irritability, was included in an effort to determine the extent to which the mother rejects or ignores her children. We felt it important to explore this area since the items utilized in previous studies seemed to be more relevant to clinical descriptions of parents of withdrawn or schizophrenic children than to parents of aggressive or delinquent children. Demand for Activity items measure the extent to which the parent feels children should be kept busy and rushing at all times.

Although no systematic effort was made to develop generalizations concerning successful item-writing, it was frequently found that vague items which presumably enhance projective responses could be used to explore difficult areas. Rationalizations used by parents of disturbed children were used with the hope that psychopathogenic parents would agree while the critical judgment of more normal parents would cause them to reject the statement. An example is the item, "Children need some of the natural meanness taken out of them," in the scale Breaking the Will. The apparent truism seems to give the respondent with a latent but defended attitude a feeling that it may be socially acceptable to agree. Cliches, colloquialisms, and conventional affect-laden phrases were often useful. Examples of these are phrases in the scale Irritability such as "will get on any woman's nerves," "can't stand their children a moment longer," "it's natural for a woman to blow her top." An example of attaching the aura of self-righteousness to an item is, "A wise parent will teach a child early just who is boss." Such techniques were used in item writing with the hypothesis that thresholds for item acceptance would be changed differentially in normal and deviant parents. No empirical data are available, however, to test this hypothesis.

The Samples

During two different two-month periods women were tested within one to four days following delivery of their babies at a military hospital in the metropolitan area of Washington, D.C. Mothers who were not sufficiently recovered from sedation at the time of test administration, mothers with less than an eighth grade education, and non-English speaking mothers were excluded. Age and educational levels of these groups are reported in Tables 2 and 3. These data are reported as a partial assessment of the representativeness of these groups. Test instructions were given on

the ward, each mother working individually while remaining in her bed. Trial Form III was given to 100 freshman and sophomore student nurses. Final Form IV, which was used to determine the reliability of the five item scales, was given to a group similar to the samples for Trial Forms I and II.

TABLE 2

EDUCATION OF PARI SAMPLES CONTRASTED WITH 1950 CENSUS DATA*

	PRIMIPARAE $N = 200$ *Per Cent*	MULTIPARAE $N = 200$ *Per Cent*	1950 CENSUS *Per Cent*
Grammar School	2	2	13
Some High School	10	13	25
High School Graduate	50	49	42
Some College	23	24	12
College Graduate	13	10	6
No information	2	2	2

* 1950 census data on education of all white females, urban and rural, within the age range of 18 to 40 years.

TABLE 3

AGES OF PARI SAMPLES CONTRASTED WITH 1952 VITAL STATISTICS*

PARI SAMPLES			1952 VITAL STATISTICS		
AGE *Years*	PRIMIPARAE $N = 200$ *Per Cent*	MULTIPARAE $N = 200$ *Per Cent*	AGE *Years*	PRIMIPARAE *Per Cent*	MULTIPARAE *Per Cent*
-18	9	2			
			-19	25	4
19-21	36	12			
			20-24	44	26
22-24	34	25			
25-27	9	15	25-29	20	33
28-30	5	15			
			30-34	8	23
31-33	2	13			
34-36	3	10	35-	3	14
37-	0	7			
No information	2	1			

* Class intervals cannot be compared directly since PARI data were obtained in class intervals which differed from vital statistics class intervals.

TABLE 4

RELIABILITY ESTIMATES FOR VARIOUS PARI SAMPLES

	Group:	PRIMIPARAE			MULTIPARAE			NURSES	
	Form:	*Trial I*	*Trial II*	*Final IV*	*Trial I*	*Trial II*	*Final IV*	*Trial III*	*Trial III*
	N:	100	100	60	100	100	60	100	60
	Formula:	KR20	KR20	KR20*	KR20	KR20	KR20	KR20	PPM†
Scale	No. items:	10	8	5	10	8	5	8	8
Equalitarianism		.37		.40	.58		.46		
Nonpunishment		.67			.54				
Avoidance of Tenderness		.62			.58				
Suppression of Aggression		.77		.67	.80		.67	.54	.48
Breaking the Will		.69		.60	.73		.68	.63	.74
Autonomy of the Child		.66			.62			.61	.18
Ignoring the Child		.48			.43				
Strictness		.78		.69	.79		.74	.74	.76
Intrusiveness		.86		.76	.85		.73	.84	.63
Expression of Affection		.49			.57				
Infantilization		.63			.70			.57	.47
Suppression of Sex		.66		.63	.79		.67	.58	.51
Acceleration of Development		.71		.65	.61		.70	.64	.51
Comradeship and Sharing		.62		.60	.55		.40	.62	.62
Deification		.77		.55	.69		.77	.79	.75
Martyrdom		.78		.67	.85		.67	.65	.73
Encouraging Verbalization			.62	.34		.67	.45	.61	.44
Seclusion of the Mother			.77	.70		.75	.70	.61	.68
Harsh Punishment			.82			.83		.76	.66
Dependency of the Mother			.69	.54		.66	.47		
Fear of Harming the Baby			.74	.72		.66	.70		
Fostering Dependency			.75	.77		.76	.73	.60	.71
Marital Conflict			.71	.69		.68	.60	.64	.64
Irritability			.77	.63		.77	.54	.73	.79
Excluding Outside Influences			.77	.63		.77	.74	.67	.72
Rejection of the Homemaking Role			.79	.68		.73	.68	.72	.62
Avoidance of Communication			.74	.57		.71	.64	.59	.53
Ignoring the Baby			.70			.63		.77	.66
Ascendancy of the Mother			.86	.71		.77	.76	.74	.60
Inconsiderateness of the Husband			.81	.69		.83	.73		
Approval of Activity			.72	.45		.71	.64	.66	.64
Abdication of the Parental Role			.66			.43		.64	.78

* Cross-validated reliability of five best items selected from Form I or II calculated with Kuder-Richardson Formula 20.

† Pearson product-moment test-retest reliability.

Reliabilities

The results of investigations of internal consistency and test-retest reliabilities of the scales are reported in Table 4. Reliabilities were estimated with Kuder-Richardson Formula 20 (19) for the scales included in Trial Forms I and II for both multiparae and primiparae. In an attempt to develop a more efficient test, the five most reliable items for each scale were selected for Final Form IV which consists of 23 five-item scales. Internal consistency reliability coefficients were calculated for these five-item scales on new samples of 60 multiparae and 60 primiparae. In general, the reliabilities were again satisfactory for multivariate research on group differences. Scales from both Trial Forms I and II were included in Trial Form III which was administered to 100 student nurses who were highly homogeneous in age, education, and socioeconomic background. Despite the homogeneity of the sample, internal consistency reliability coefficients were again satisfactory. Test-retest reliabilities, which were calculated for 60 of the group who were retested after a period of three months, were generally good although a few scales on which there was very little variability in score in this group had appreciably lower test-retest reliability as compared to internal consistency reliability.

Item Analysis

Although the reliability estimates for eight- and 10-item scales in the initial forms were satisfactory, it seems probable that individual items were not effectively measuring the concepts in which they had been included. The same data upon which reliabilities had been calculated were therefore utilized to determine the correlation of each item with the total score of the scale in which it had been included. An analysis described by Wherry and Winer (39), which estimates the loading of an item on the centroid of the scale in which it is included, was performed.[3] These data permitted the selection of 23 subscales of five items each for Final Form IV of the Parental Attitude Research Instrument (PARI) which is reported in the appendix with instructions which were used in administering the inventory. In Final Form IV the items within a scale are cyclically arranged so that the first subscale includes items 1, 24, 47, 70, and 90, the second subscale items 2, 25, 48, 71, and 94, etc. A more detailed description of the test and its use are reported in an unpublished manuscript (33).

[3] A table containing the total set of items together with their loadings on the scale centroids has been deposited as Document number 5559 with the ADI Auxiliary Publications Project, Photoduplication Service, Library of Congress, Washington 25, D. C. A copy may be secured by citing the Document number and by remitting $3.75 for photoprints, or $2.00 for 35 mm. microfilm. Advance payment is required. Make checks or money orders payable to: Chief, Photoduplication Service, Library of Congress.

TABLE 5

PARI SCALE CORRELATIONS WITH EDUCATIONAL LEVEL

Attitude Scale	*Primiparae*	*Multiparae*
	(N=100)	(N=100)
Equalitarianism	—.11	—.02
Nonpunishment	—.03*	—.32
Avoidance of Tenderness	—.09	—.20
Suppression of Aggression	—.33	—.34
Breaking the Will	—.20	—.42
Autonomy	—.31	—.12
Ignoring the Child	—.06	—.15
Strictness	—.13	—.24
Intrusiveness	—.30	—.40
Expressing Love and Affection	—.02	—.06
Infantilization	—.29	—.42
Suppression of Sexuality	—.33	—.48
Acceleration of Development	—.31	—.46
Comradeship and Sharing	—.05	.14
Deification of the Parent	—.26	—.52
Martyrdom	—.38	—.42
Encouraging Verbalization	.09	.05
	(N = 96)	(N = 97)
Seclusiveness of the Mother	—.30	—.22
Harsh Punishment	—.29	—.27
Dependency of the Mother	—.28	—.11
Fear of Harming the Baby	—.27	—.27
Fostering Dependency	—.33	—.31
Marital Conflict	—.35	—.17
Irritability	—.22	—.26
Excluding Outside Influences	—.25	—.15
Rejection of the Homemaking Role	—.07	—.18
Avoidance of Communication	—.30	—.20
Ignoring the Baby	—.11	—.03
Ascendance of the Mother	—.21	—.19
Inconsiderateness of the Husband	—.20	—.20
Approval of Activity	—.08	—.24
Abdication of the Parental Role	—.33	—.20

* Positive correlation should be interpreted as meaning a person with a high education level agrees with the attitude expressed by the scale.

Although predictive validity studies have not yet been done on the PARI, the studies surveyed in the review of literature could be cited as evidence supporting the concurrent validity of this general approach to the study of parent-child relationships. The content validity or the adequacy of the concepts of parental attitudes toward child-rearing can be determined by attempting to add concepts which would add new variance to measurement of this domain. Adequate evidence of the construct validity of these scales must be based upon research on various correlates of these measures.

Correlations of Scales with Educational Level

Previous investigations (9, 20) have found that differences in attitudes toward child-rearing are related to the social class level of the respondents. A recent investigation of the interrelationships of various indices of social class level led to the conclusion that level of educational achievement is highly related to other indicators of socioeconomic level (15). These attitude scores were therefore correlated with self-reports of number of years of school completed successfully. The findings, which are reported in Table 5, seem to be congruent with the results reported by Maccoby *et al.* (20) in that mothers of the lower educational levels tend to have less approved attitudes toward children. The correlations of education with attitude for the scales which state disapproved attitudes toward child-rearing range from $-.03$ to $-.38$ for primiparae with a mean of $-.24$, and from $-.03$ to $-.52$ for multiparae with a mean of $-.27$. Although many of these correlations are statistically significant at beyond the .05 level, the absolute magnitude of the correlations does not justify the interpretation of the variations in attitude as merely reflecting differences in educational level.

Summary

Theories of parental influence upon development of children and a review of previous research on the relationship of parental attitudes to the personality adjustment of children suggested the need for the development of a set of homogeneous measures of parental attitudes. A set of 32 concepts were selected which were derived from previous studies and from a search of the literature on parent-child relationships.

Attitude scales of five to 10 items which gave satisfactory reliability for research purposes were developed with an iterative technique of attitude measurement. Many of these measures were found to be related to education, with mothers of higher education having more usually approved attitudes toward child-rearing. It is suggested that logically, psychologically, and empirically homogeneous scales of attitude toward child-rearing will be useful in investigating theories of the influence of maternal attitudes upon development of the child.

APPENDIX A

SAMPLE COPY OF FINAL FORM IV (PARI)*

Inventory of Attitudes on Family Life and Children

Read each of the statements below and then rate them as follows:

A	a	d	D
strongly agree	mildly agree	mildly disagree	strongly disagree

Indicate your opinion by drawing a circle around the "A" if you strongly agree, around the "a" if you mildly agree, around the "d" if you mildly disagree, and around the "D" if you strongly disagree.

There are no right or wrong answers, so answer according to your own opinion. It is very important to the study that all questions be answered. Many of the statements will seem alike but all are necessary to show slight differences of opinion.

	Agree			*Disagree*
1. Children should be allowed to disagree with their parents if they feel their own ideas are better.	A	a	d	D
2. A good mother should shelter her child from life's little difficulties.	A	a	d	D
3. The home is the only thing that matters to a good mother.	A	a	d	D
4. Some children are just so bad they must be taught to fear adults for their own good.	A	a	d	D
5. Children should realize how much parents have to give up for them.	A	a	d	D
6. You must always keep tight hold of baby during his bath for in a careless moment he might slip.	A	a	d	D
7. People who think they can get along in marriage without arguments just don't know the facts.	A	a	d	D
8. A child will be grateful later on for strict training.	A	a	d	D
9. Children will get on any woman's nerves if she has to be with them all day.	A	a	d	D
10. It's best for the child if he never gets started wondering whether his mother's views are right.	A	a	d	D
11. More parents should teach their children to have unquestioning loyalty to them.	A	a	d	D
12. A child should be taught to avoid fighting no matter what happens.	A	a	d	D
13. One of the worst things about taking care of a home is a woman feels that she can't get out.	A	a	d	D

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14. Parents should adjust to the children some rather than always expecting the children to adjust to the parents.	A a	d D
15. There are so many things a child has to learn in life there is no excuse for him sitting around with time on his hands.	A a	d D
16. If you let children talk about their troubles they end up complaining even more.	A a	d D
17. Mothers would do their job better with the children if fathers were more kind.	A a	d D
18. A young child should be protected from hearing about sex.	A a	d D
19. If a mother doesn't go ahead and make rules for the home the children and husband will get into troubles they don't need to.	A a	d D
20. A mother should make it her business to know everything her children are thinking.	A a	d D
21. Children would be happier and better behaved if parents would show an interest in their affairs.	A a	d D
22. Most children are toilet trained by 15 months of age.	A a	d D
23. There is nothing worse for a young mother than being alone while going through her first experience with a baby.	A a	d D
24. Children should be encouraged to tell their parents about it whenever they feel family rules are unreasonable.	A a	d D
25. A mother should do her best to avoid any disappointment for her child.	A a	d D
26. The women who want lots of parties seldom make good mothers.	A a	d D
27. It is frequently necessary to drive the mischief out of a child before he will behave.	A a	d D
28. A mother must expect to give up her own happiness for that of her child.	A a	d D
29. All young mothers are afraid of their awkwardness in handling and holding the baby.	A a	d D
30. Sometimes it's necessary for a wife to tell off her husband in order to get her rights.	A a	d D
31. Strict discipline develops a fine strong character.	A a	d D
32. Mothers very often feel that they can't stand their children a moment longer.	A a	d D
33. A parent should never be made to look wrong in a child's eyes.	A a	d D
34. The child should be taught to revere his parents above all other grown-ups.	A a	d D
35. A child should be taught to always come to his parents or teachers rather than fight when he is in trouble.	A a	d D
36. Having to be with the children all the time gives a woman the feeling her wings have been clipped.	A a	d D
37. Parents must earn the respect of their children by the way they act.	A a	d D
38. Children who don't try hard for success will feel they have missed out on things later on.	A a	d D

39.	Parents who start a child talking about his worries don't realize that sometimes it's better to just leave well enough alone.	A a d D
40.	Husbands could do their part if they were less selfish.	A a d D
41.	It is very important that young boys and girls not be allowed to see each other completely undressed.	A a d D
42.	Children and husbands do better when the mother is strong enough to settle most of the problems.	A a d D
43.	A child should never keep a secret from his parents.	A a d D
44.	Laughing at children's jokes and telling children jokes makes things go more smoothly.	A a d D
45.	The sooner a child learns to walk the better he's trained.	A a d D
46.	It isn't fair that a woman has to bear just about all the burden of raising children by herself.	A a d D
47.	A child has a right to his own point of view and ought to be allowed to express it.	A a d D
48.	A child should be protected from jobs which might be too tiring or hard for him.	A a d D
49.	A woman has to choose between having a well run home and hobnobbing around with neighbors and friends.	A a d D
50.	A wise parent will teach a child early just who is boss.	A a d D
51.	Few women get the gratitude they deserve for all they have done for their children.	A a d D
52.	Mothers never stop blaming themselves if their babies are injured in accidents.	A a d D
53.	No matter how well a married couple love one another, there are always differences which cause irritation and lead to arguments.	A a d D
54.	Children who are held to firm rules grow up to be the best adults.	A a d D
55.	It's a rare mother who can be sweet and even tempered with her children all day.	A a d D
56.	Children should never learn things outside the home which make them doubt their parents' ideas.	A a d D
57.	A child soon learns that there is no greater wisdom than that of his parents.	A a d D
58.	There is no good excuse for a child hitting another child.	A a d D
59.	Most young mothers are bothered more by the feeling of being shut up in the home than by anything else.	A a d D
60.	Children are too often asked to do all the compromising and adjustment and that is not fair.	A a d D
61.	Parents should teach their children that the way to get ahead is to keep busy and not waste time.	A a d D
62.	Children pester you with all their little upsets if you aren't careful from the first.	A a d D
63.	When a mother doesn't do a good job with children it's probably because the father doesn't do his part around the home.	A a d D

64. Children who take part in sex play become sex criminals when they grow up. A a d D
65. A mother has to do the planning because she is the one who knows what's going on in the home. A a d D
66. An alert parent should try to learn all her child's thoughts. A a d D
67. Parents who are interested in hearing about their children's parties, dates and fun help them grow up right. A a d D
68. The earlier a child is weaned from its emotional ties to its parents the better it will handle its own problems. A a d D
69. A wise woman will do anything to avoid being by herself before and after a new baby. A a d D
70. A child's ideas should be seriously considered in making family decisions. A a d D
71. Parents should know better than to allow their children to be exposed to difficult situations. A a d D
72. Too many women forget that a mother's place is in the home. A a d D
73. Children need some of the natural meanness taken out of them. A a d D
74. Children should be more considerate of their mothers since their mothers suffer so much for them. A a d D
75. Most mothers are fearful that they may hurt their babies in handling them. A a d D
76. There are some things which just can't be settled by a mild discussion. A a d D
77. Most children should have more discipline than they get. A a d D
78. Raising children is a nerve-wracking job. A a d D
79. The child should not question the thinking of his parents. A a d D
80. Parents deserve the highest esteem and regard of their children. A a d D
81. Children should not be encouraged to box or wrestle because it often leads to trouble or injury. A a d D
82. One of the bad things about raising children is that you aren't free enough of the time to do just as you like. A a d D
83. As much as is reasonable a parent should try to treat a child as an equal. A a d D
84. A child who is "on the go" all the time will most likely be happy. A a d D
85. If a child has upset feelings it is best to leave him alone and not make it look serious. A a d D
86. If mothers could get their wishes they would most often ask that their husband be more understanding. A a d D
87. Sex is one of the greatest problems to be contended with in children. A a d D
88. The whole family does fine if the mother puts her shoulders to the wheel and takes charge of things. A a d D
89. A mother has a right to know everything going on in her child's life because her child is part of her. A a d D

90. If parents would have fun with their children, the children would be more apt to take their advice. A a d D
91. A mother should make an effort to get her child toilet trained at the earliest possible time. A a d D
92. Most women need more time than they are given to rest up in the home after going through childbirth. A a d D
93. When a child is in trouble he ought to know he won't be punished for talking about it with his parents. A a d D
94. Children should be kept away from all hard jobs which might be discouraging. A a d D
95. A good mother will find enough social life within the family. A a d D
96. It is sometimes necessary for the parents to break the child's will. A a d D
97. Mothers sacrifice almost all their own fun for their children. A a d D
98. A mother's greatest fear is that in a forgetful moment she might let something bad happen to the baby. A a d D
99. It's natural to have quarrels when two people who both have minds of their own get married. A a d D
100. Children are actually happier under strict training. A a d D
101. It's natural for a mother to "blow her top" when children are selfish and demanding. A a d D
102. There is nothing worse than letting a child hear criticisms of his mother. A a d D
103. Loyalty to parents comes before anything else. A a d D
104. Most parents prefer a quiet child to a "scrappy" one. A a d D
105. A young mother feels "held down" because there are lots of things she wants to do while she is young. A a d D
106. There is no reason parents should have their own way all the time, any more than that children should have their own way all the time. A a d D
107. The sooner a child learns that a wasted minute is lost forever the better off he will be. A a d D
108. The trouble with giving attention to children's problems is they usually just make up a lot of stories to keep you interested. A a d D
109. Few men realize that a mother needs some fun in life too. A a d D
110. There is usually something wrong with a child who asks a lot of questions about sex. A a d D
111. A married woman knows that she will have to take the lead in family matters. A a d D
112. It is a mother's duty to make sure she knows her child's innermost thoughts. A a d D
113. When you do things together, children feel close to you and can talk easier. A a d D
114. A child should be weaned away from the bottle or breast as soon as possible. A a d D
115. Taking care of a small baby is something that no woman should be expected to do all by herself. A a d D

APPENDIX B

INSTRUCTIONS TO SUBJECTS FOR PARI

"I am ..... In cooperation with (hospital or school authorities) I am studying what (mothers) (women) think about how children should be brought up. A lot is written on this subject in various newspaper and magazine articles. Frequently these articles are not in agreement. I thought it would be a good idea to find out what (mothers) (women) themselves think. You can help in the study by passing on your own ideas. This is voluntary. If you would contribute your ideas I will leave the form with you and return for it in approximately 20 minutes. Be frank and give your own personal views regardless of what others may think. You do not need to give your name. I would, however, like you to fill out the questions on the last page for research purposes (age, education, etc.). So as not to use too much of your time we have a list of ideas which other mothers have contributed. You merely circle one of the four letters by each statement. Circle the large "A" if you strongly agree, the small "a" if you mildly agree, the small "d" if you mildly disagree, the large "D" if you strongly disagree. If you have any ideas which you feel should be included jot them down at the end. We would appreciate having them. Others who have given us their ideas say that it is best to work rapidly. Give your first reaction. If you read and reread the statements it tends to be confusing and you can't finish in the amount of time we have."

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EFFECTS OF PUBLIC AND PRIVATE SUCCESS OR FAILURE ON CHILDREN'S REPETITIVE MOTOR BEHAVIOR

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This is a report of two studies on the conditions and consequences of the arousal of pride and shame in children. In common-sense terms, pride and shame are related to the public exposure of a person's characteristics. People are proud when their good characteristics are exposed, ashamed when their bad characteristics are revealed to the public. In its broadest sense *shame* is an emotional state that occurs when one's defects, poor abilities, or bad intentions are made public. *Pride* is an emotional state resulting from the public exposure of good abilities or good intentions. There is no implication that shame and pride are bipolar.

In these studies there was no attempt to measure directly the feelings of pride and shame. Rather, the situational factors presumed to arouse the feelings were manipulated and certain behavioral consequences were observed. Pride and shame, then, are intervening variables in the schema. The operations presumed to arouse these feelings are to have the subjects succeed or fail in public (the private condition serves as the control); and the dependent variables are the speed and accuracy of performance on simple visuomotor performances.

Although few empirical studies have explicitly investigated pride or shame, the following bodies of empirical literature are relevant to the present research: (a) the effects of failure stress on performance; (b) studies of audience effects; (c) the effects of praise and reproof on performance; and (d) studies of reward and punishment. Only the first two will be discussed here.

The effects of failure on subsequent behavior have been summarized by Lazarus *et al.* (3, 4) in their discussion of stress. The results are far from unequivocal, but they may be summarized, without too much injustice, in this way: stress results in an "impairment" of performance on both verbal and psychomotor tasks. One study, closely similar to the present

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research, found on a symbol substitution task that failure stress increased speed and decreased accuracy (4).

Lazarus, Deese, and Osler (3) describe three conceptually distinct effects of failure: (a) a directive or cognitive effect, that is, a failure gives the *S* information about the inappropriateness of his behavior; (b) a motivational effect, which may be further analyzed into two varieties: (b_1) a need-persistive effect, a failure to attain a goal increases the strength of the motive to attain it, and (b_2) an ego-defensive effect, a failure conveys information about the person, it devalues the self, and instigates motives to restore that evaluation by succeeding, finding excuses for failure, devaluing the importance of the goal, etc.; (c) the third effect of failure—perhaps a consequence of the second—is "emotional," that is, failure may disrupt adaptive behavior.

This analysis of the consequences of failure makes clear how the comparison of public and private failure fits into the paradigm. We hypothesize that a public failure has no different directive or cognitive effect than private failure. Furthermore, we can see no reason why a public failure should have a different need-persistive effect than private failure.

We would expect, however, that a public failure might well increase the ego-defensive effect by devaluing the self not noly in the person's own eyes but in the eyes of the audience as well. Since one ego-defense is counteraction, failure might well increase the motivation to succeed and perhaps bring it to such heights that it disrupts performance.

A comparable analysis of the effects of success is not a mirror image of the analysis of failure. (a) The cognitive effects are generally opposite; *S* is informed that his behavior was appropriate; there is no reason to make any qualitative changes in the behavior. Success leads to stabilization; failure to variation. (b) The need-persistive effect is equivocal. There is no reason to suppose that the attainment of a goal necessarily reduces the motivation to attain it on another occasion unless something like satiation takes place. In general, however, success probably results in less increase in motivation than does failure. (c) The ego-defensive effect is not entirely clear either. Success enhances the evaluation of the self and probably does not instigate such intense motivation as failure. On the other hand, it may give the person a high self-evaluation to live up to and make it more important for him to succeed a second time than it was to succeed the first time.

Since we argue that, in general, the strength of motivation is less after success than after failure, the probability of its reaching disrupting intensity is lower. So general observation would indicate: people are more relaxed after success than failure.

Since certain experimental conditions in the present studies involved public performance, the research on audience effects is relevant. Dashiell (2) has reviewed this literature to 1936, and, referring particularly to his own work (1), sees a tendency for the *passive spectator group* to increase

speed and to decrease accuracy. It will be noted that a similar tentative conclusion was drawn from the results on failure stress.

If we accept these conclusions in spite of the feebleness of the supporting evidence, they support the expectation that a failure condition and an audience cumulate to produce more marked effects than failure alone. The supporting argument, however, is based upon the assumption that the effect is mediated through changes in motivation.

In order to predict an increase in speed, we must further assume either that: (a) *S*'s motivation is primarily to be speedy, secondarily to be accurate, so that an increase in motivation will then tend to increase speed at the expense of accuracy; or (b) that disruption of adaptive behavior in this task will appear in the form of faster more careless performance. The first alternative is preferable.

There may well be other effects of an audience. It may distract *S* from his work and may be an incentive to bid for attention or to ask for evaluation. In actual practice these did not seem significant features of any *S*'s behavior.

To summarize the literature related to the present studies, the results have been generally inconsistent but there is a slight balance in favor of the hypothesis that failure tends to increase speed and decrease accuracy on repetitive motor tasks and that an audience has the same effect.

Experiment A

Method

Subjects. There were 48 children, divided equally between boys and girls, membership in the fourth, fifth, and sixth grades, and high and low academic achievement as measured by the Stanford Achievement Test. The age range of the children was 8 to 12 years.

Procedure. The task given to *S*s was to cancel all the A's in a continuous story. The story was typed all in capitals, single-spaced, and was contained completely on a single page. If an *S* finished, he began again on a new page and could use as many pages as he had time for.

A single *S* was brought from the classroom to a nearby experimental room where he worked with *E*. *E* explained the task to *S*, emphasizing that he was to go as fast as he could. *S* practised cancelling A's on a single line to insure that he understood the directions.

There was an "audience" and a "no audience" condition. For the former, the *E*, an adult male, sat beside *S* and watched him work. In the no audience condition, *E* left the room following the instructions, so that *S* worked alone.

Further, half of the *S*s were given a success and half, a failure experience. The success-failure conditions were effected in the following manner: midway through the session—after 7½ minutes—*E* told *S* how much cancellation most people did halfway through the session. The

TABLE 1

MEANS OF NUMBER OF A'S CANCELLED DURING FIRST HALF AND SECOND HALF OF SESSION AND CHANGES

	High Achievers			Low Achievers		
	1st Half	*2nd Half*	*Change*	*1st Half*	*2nd Half*	*Change*
Audience:						
Success	171.5	156.2	−15.3	162.7	165.8	+ 3.1
Failure	157.2	170.3	+13.1	141.3	153.7	+12.4
No Audience:						
Success	168.8	155.2	−13.6	148.2	146.5	− 1.7
Failure	160.3	167.3	+ 7.0	150.3	157.6	+ 7.4

"norms" were based upon information from a previous experiment and were so chosen that every child in the success group was well beyond the norm and each child in the failure group far from achieving the norm. There were, consequently, the following four conditions with 12 *Ss* in each: (a) audience-success; (b) audience-failure; (c) no audience-success; and (d) no audience-failure. Of the 12 *Ss* in each condition, six were high and six were low achievers.

Results

There are two dependent variables in this experiment, the number of items cancelled and the number of omissions between the beginning and the last item cancelled. The sum of these two measures corresponds to the usual measure of speed.

In the design of this experiment, success or failure was introduced midway in the session, but the audience was present or absent throughout the session. For the study of the effect of failure and success and their interactions, the appropriate measure is change from the first half to the

TABLE 2

ANALYSIS OF VARIANCE OF CHANGES IN THE NUMBER OF A'S CANCELLED

Source	*df*	*Mean Square*	*F*	*p*
Audience	1	77.05		
Success-Failure (SF)	1	1700.17	5.94	$< .05$
Achievement	1	337.50		
Aud. × SF	1	23.99		
Aud. × Ach.	1	10.66		
SF × Ach.	1	360.37		
Aud. × SF × Ach.	1	22.05		
Error	40	286.00		

TABLE 3

MEANS OF NUMBER OF OMISSIONS DURING FIRST AND SECOND HALF OF SESSION AND CHANGES

	High Achievers			Low Achievers		
	1st Half	*2nd Half*	*Change*	*1st Half*	*2nd Half*	*Change*
Audience:						
Success	29.5	20.7	− 8.8	39.2	27.0	−12.2
Failure	59.2	68.3	+ 9.1	38.3	49.5	+11.2
No Audience:						
Success	34.0	29.8	− 4.2	35.5	34.0	− 1.5
Failure	19.8	36.8	+17.0	31.7	37.7	+ 6.1

second, obtained, in the statistical analysis, as an interaction of sessions and success-failure; but, for presentation, we will use the mean change.

The means of each half and the changes from first to second half of the session are shown in Tables 1 and 3, the analysis of variance of the changes from the first to second half of the session, in Tables 2 and 4.

On both measures the effects of success and failure are significantly different ($p < .05$, for A's; $p < .01$, for omissions). After a failure experience subjects cancel more A's ($p < .05$) and also omit more A's ($p < .05$) than they did before. A success experience tends to have just the opposite effect: it decreases the number of A's cancelled ($p < .20$) and the number of omissions ($p < .10$). If the two scores were added to obtain a speed measure, the differences would cumulate.

None of the other effects in the table reaches significance. While the success-failure difference in number of A's is significant for high achievers only, there is no significant interaction between success-failure and achievement. In the light of the other results reported here, the most likely interpretation is a general success-failure effect.

TABLE 4

ANALYSIS OF VARIANCE OF CHANGES IN THE NUMBER OF OMISSIONS

Source	*df*	*Mean Square*	*F*	*p*
Audience	1	123.76		
Success-Failure (SF)	1	1846.26	7.76	< .01
Achievement	1	33.85		
Aud. × SF	1	58.60		
Aud. × Ach.	1	17.51		
SF × Ach.	1	25.00		
Aud. × SF × Ach.	1	133.01		
Error	40	238.06		

TABLE 5

MEAN NUMBER OF A'S AND OF OMISSIONS BEFORE EITHER SUCCESS OR FAILURE

	Audience		No Audience	
	A's	*Omissions*	*A's*	*Omissions*
High Achievement	164.3	44.3	164.6	26.9
Low Achievement	152.0	38.7	149.2	33.6

The effect of failure resembles that found under speed instructions, i.e., speed is increased at the expense of accuracy. This result confirms findings previously reported (4). If we assume that an increase in effort would have this effect, we can interpret these findings as showing that the failure experience increased motivation and made the child try harder, while the success experience lets him relax. Remember that the child did not think of his performance as two trials; in the middle of a performance he was told he was well ahead or seriously behind the average. He had no inkling that his score would be computed for the second half alone. The success experience under these particular conditions might well give the child the feeling he could let up on the pressure a bit.

As far as audience is concerned, there are no effects. There is no evidence to support the hypothesis that a public failure is more motivating than a private one, nor that its effect is different for high and low achievers. While the differences are in the expected direction, they are not significant. There is even less evidence that public success has any different consequences from a private one.

Table 5 shows the effect of audience and achievement alone. Only the results from the first half of the session, before either success or failure were introduced, are used. Table 6 shows the analyses of variance for number of A's and number of omissions. As far as A's are concerned,

TABLE 6

ANALYSIS OF VARIANCE FOR A'S AND OMISSIONS IN FIRST HALF OF SESSIONS

		No. A's Cancelled			No. of Omissions		
Source	*df*	*Mean Square*	*F*	*p*	*Mean Square*	*F*	*p*
Audience	1	18.75			1530.02	2.83	$< .10$
Achievement	1	2296.34	1.25	n.s.	3.52		
Aud. × Ach.	1	27.00			450.19		
Error (within cell) ..	44	1835.77			541.11		

audience has no effect. There is a tendency, however, for the audience group to make more omissions.

Experiment B

The cancellation task in Experiment A utilizes skills in reading and recognizing letters in which most school children have had some relevant experiences and for which they bring some skills to the experiment. Our thinking was that a less habituated task might be more sensitive to the experimental manipulations. Besides the nature of the task, this experiment also differs from the other in the nature of the audience conditions and in the way success and failure were induced.

Method

Subjects. There were 60 girls, aged 8 to 11 years, all of whom were members of a summer day camp where the study was conducted. With the restriction that ages be approximately equally represented, *Ss* were randomly assigned to one of six experimental treatments.

The Task. A pegboard, 24 in. by 24 in., containing 528 pegs, was mounted on an easel at eye level to *S*. The pegs were of varying colors as was a circular area of the pegboard surrounding each peg. *S* was instructed to remove all pegs whose background was either red or blue, but to ignore the color of the peg itself.

Each *S* was given a practice row to insure that she understood the directions. The instructions were to remove all of the appropriate pegs as fast as she could. The session lasted for two minutes. *Ss* performed in two sessions on successive days.

Audience Conditions. There were the following three audience conditions: (a) No audience—for each of the two sessions *E* went to the other side of the room and turned her back to *S* immediately following the instructions. For half the *Ss*, *E* was a male, and for half, a female. (b) Adult female audience—*E* closely watched *S* while she performed during both sessions. (c) Adult male audience—same as (b), except that *E* was male.

Success-Failure. At the beginning of the second session, *S* was told that she had done very well during the previous session, that she had pulled more pegs than most of the other children (success); or that she had done very poorly, that she had removed fewer pegs than most of the other children (failure).

There were, therefore, six groups: three audience conditions, half of each of which experienced success, and half, failure.

Results

Two scores were calculated from the peg task: (a) the number of pegs removed in the two minute period, and (b) the number of pegs passed

TABLE 7

MEANS AND CHANGES AND ANALYSIS OF VARIANCE OF CHANGES IN NUMBER OF PEGS FROM SESSION 1 TO SESSION 2

	SUCCESS			FAILURE		
	Session 1	*Session 2*	*Change*	*Session 1*	*Session 2*	*Change*
No Audience	51.8	66.0	+14.2	49.5	66.9	+17.4
Male Audience	43.2	56.7	+13.5	47.3	63.6	+16.3
Female Audience ..	49.4	61.5	+12.1	47.7	62.7	+15.0

Source	*df*	*Mean Square*	*F*	*p*
Success-Failure (SF)	1	66.02	3.21	< .10
Audience	2	12.83		
SF × Aud.	2	.11		
Error	54	20.57		

over, or omitted, from the beginning to the last peg pulled. The means and changes from session 1 to 2 and the analyses of variance of the changes are presented in Tables 7 and 8.

The success-failure difference is significant at the .10 level for number of pegs removed and at the .05 level for omissions. The directions of the differences are consistent with those of Experiment A, confirming the tendency of failure to elicit a fast but careless performance.

Because we are dealing with a new skill, there are large learning effects. The number of pegs pulled increases and the number of omissions drops, for all conditions. To make the effects of the audiences and success failure

TABLE 8

MEANS AND CHANGES AND ANALYSIS OF VARIANCE OF CHANGES IN NUMBER OF OMISSIONS FROM SESSION 1 TO SESSION 2

	SUCCESS			FAILURE		
	Session 1	*Session 2*	*Change*	*Session 1*	*Session 2*	*Change*
No Audience	12.0	3.6	− 8.4	9.8	7.0	− 2.8
Male Audience	9.2	3.7	− 5.5	12.5	9.0	− 3.5
Female Audience ..	9.2	3.5	− 5.7	8.3	4.6	− 3.7

Source	*df*	*Mean Square*	*F*	*p*
Success-Failure	1	76.48	4.16	< .05
Audience	2	3.37		
SF × Aud.	2	10.68		
Error	54	18.40		

more apparent, we subtracted the general effects of practice, taken as the mean change over all the conditions, namely, an increase of 13.5 pegs and decrease of 4.4 omissions. The results, reported in Table 9, show more clearly the effects of success and failure.

As in the first experiment, the audience effect and the audience × success-failure interaction are in the expected direction but are not significant. Contrary to our expectation, being seen failing or succeeding does not intensify the over-all effects of success or failure. Likewise, it makes no difference to the subject whether she is watched by a male or female.

It will be recalled in Experiment A that, prior to the introduction of success or failure, the audience group was somewhat more careless in its performance than the unobserved group. An analysis of the first session only in this experiment reveals no such audience effect.

TABLE 9

ADJUSTED MEAN CHANGES IN NUMBER OF PEGS AND OMISSIONS FROM SESSION 1 TO SESSION 2

	SUCCESS		FAILURE	
	Pegs	*Omissions*	*Pegs*	*Omissions*
No Audience	− .7	−4.0	+2.5	+1.6
Male Audience	−1.4	−1.1	+1.4	+ .9
Female Audience	−2.8	−1.3	+ .1	+ .7

DISCUSSION AND SUMMARY

The two foregoing studies report the effects either of audiences or audiences in combination with success and failure on children's performances in simple visuomotor tasks. The conclusion which appears warranted its that success and failure have appreciable effects on such behavior, but whether the performance is public or private does not.

Our expectation concerning the interaction between public-private and success-failure was that the public would intensify the reactions to success and failure, and particularly to the latter. That is, public failure would arouse ego defenses which would result in the subjects' trying to improve their performance. In neither study was there a significant interaction between success-failure and audience. Where there is a tendency for audiences to intensify the failure effect, it is on the number of omissions rather than the number of A's cancelled.

Since the search for an audience effect was the main object in this experiment, it may be appropriate to consider briefly some reasons for its absence. Assuming that there is an effect of an audience, it seems likely that both the public and private conditions were contaminated in the

present study. In the private conditions the experimenter was clearly going to know the results, even if he was not physically watching the behavior. The public condition was not *very* public, to say the least. In more recent experiments on other variables groups of three spectators have proved to have effects and we have devised equipment that appears to be self-scoring to create a better illusion of a truly private condition.

The effects of success and failure are strikingly consistent through both experiments. Success reduces output and leads to a more accurate performance; failure has the opposite effect. This finding appears especially trustworthy and general since it holds through several types of tasks, several experimental settings, and various groups of subjects. As we indicated earlier, there is also substantial agreement on this point in the experimental literature.

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THE CHOICE TO EXHIBIT[1]

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This is a report of two studies from a program of research on pride and shame in children. For our purposes, pride is defined as an emotional state that results from the public exposure of one's good characteristics, and shame as an emotional state that occurs when one's poor characteristics become public. Stemming from these definitions, our previous studies have involved subjects who succeed or fail in private or in public and the observations of certain ensuing behaviors (1).

The significance of pride and shame in guiding and controlling behavior is not limited to those circumstances in which the emotional states actually have been aroused. Rather, the anticipation of these states may itself exert potent influences, once the person has had experience with the emotions themselves. People behave in certain ways because they anticipate the approbation of some fantasied, not-present public, and they look forward to being visible to this audience. Contrariwise, the disapproval of some future audience restrains disvalued behavior.

Several distinctions are useful. Shame and pride are the feelings that result when certain acts or qualities are public. The anticipation of these states may occur at two points: (a) before any action has taken place, or (b) after some action has taken place, but before the characteristic or behavior has become public.

The present studies are concerned with the latter point. Subjects were given success and failure experiences and were then permitted to choose how visible they wanted to be to certain "supposed" audiences. Our hypothesis is that, regardless of the nature of the audience, people will want to be more visible after a success than after a failure experience.

A second parameter investigated is the nature of the audience that the subject anticipates. Many aspects of the relationships between a person and his audience may, in theory, be investigated; for example, their prestige relative to each other, their friendliness, frequency of contact, etc. In the present instances we chose to manipulate prestige. We would expect that a combination of failure and an audience of high prestige should make a person desire least visibility.

The experimental designs, then, call for the subjects to complete a task successfully or unsuccessfully, to anticipate audiences of lower, equal, and

[1] This research was supported by a grant from the National Institute of Mental Health, "Pride and Shame in Children" (M-901). We wish to thank Marianne Hales and Irene Stein for their help in collecting the data.

higher prestige, and to indicate how visible they are willing to be to each of the audiences.

Experiment A

Method

Subjects. The Ss were 60 children, 30 boys and 30 girls, in the fourth, fifth, and sixth grades, aged 9 to 12 years. The children were assigned at random to one of the three groups described below, with the restrictions that sex, grade level, and school achievement be equally represented in each group.

Procedure. Each *S* was taken individually by *E* from his classroom to a nearby experimental room. There he was shown a model of a small table made by gluing together strips of balsam wood. He was given a packet of pre-cut pieces of wood and a tube of glue and told to build a table as nearly like the model as he could. He was told that he could take as much time as he needed. When it was apparent that he understood the task, *S* was given the pre-experimental questionnaire, which is reproduced below. He read it aloud to insure that he could read and understand the words.

> Now that you know about this model, what would you like to do with yours after you finish? Suppose that there will be a display of these models in your classroom.
>
> Write *Yes* in front of all the things you would like to do with your own.
> Write *No* in front of the things you would not like to do with your own.
>
> _____ Not show it to the class, but take it home.
> _____ Hold it up in front of the class.
> _____ Make one like it while the class watches me.
> _____ Display it in class *with* my name on it.
> _____ Not show it to the class, but just throw it away.
> _____ Display it in class *without* my name on it.

S was left to work on the model unobserved; he signalled *E* when he was finished. Depending on his treatment group, *S* was given one of three experiences at this point.

a. *Success.* *E* chose one aspect of the completed model and in *objective terms* praised it. "Your model is very neat (or straight, or strong). It is much neater than most of the children in your grade have been able to do." ($N = 24$ in this group.)

b. *Failure.* "Your model is *not* very neat. Most children in your grade have been able to build a neater model." ($N = 24$ in this group.)

c. *Control.* *E* made no comment on the model. This group was included to observe the effects of simply completing the task on subsequent behavior. ($N = 12$ in this group.)

Each child was then given three post-experimental questionnaires, requiring him to anticipate, in turn, his own class, the kindergarten, and the high school as audiences. For each of the questionnaires the alternatives

offered *S* were the same as for the pre-experimental form above, with changes in wording to conform to the appropriate audiences.

Scoring the questionnaires. The task is to devise a procedure for assigning a "visibility" score for each alternative in the questionnaire. To do this we administered the visibility items to a fifth grade class under clearly pride and shame instructions. The *S*s were not ones used in either of the experiments reported here. Following are the instructions given to the class of 30 children:

> "Suppose you build something (like a model) that you are very proud of. You have done a very good job, better than most people in your class. What would you like to do with your model?"

TABLE 1

RESPONSES OF 30 CHILDREN TO VISIBILITY ITEMS UNDER PRIDE AND SHAME INSTRUCTIONS

Item	Pride		Shame	
	Yes	*No*	*Yes*	*No*
Show it to my parents	30	0	22	8
Put it in an exhibit for the rest of the class to see *with* my name on it	27	3	1	29
Hold it up in front of my class	24	6	3	27
Make one like it while the class watches me	18	12	3	27
Put it in an exhibit for the rest of the class to see *without* my name on it	4	26	16	14
Keep it, but not show it to anyone	0	30	14	16
Throw it away without letting anyone see it	0	30	12	18

Next, the instructions to the same group were reworded in terms of "a model you are ashamed of." The responses to the two questionnaires are summarized in Table 1.

Two items, *show it to parents* and *throw it away*, are inconsistent with the rest, i.e., preferences for these items were only slightly affected by the instructions. They probably involve other values that give them special status. The other five items could be grouped into two groups: three whose desirability was greater under pride than shame, and two for which the reverse is true.

On the basis of these results, it was decided that an individual's desire for visibility would be scored by assigning a score of +1 to a *Yes* answer to each of the following three items: Make one like it while the class watches me, Hold it up in front of the class, Display it in class *with* my name on it; and to a *No* answer to each of these two items: Display it in class *without* my name on it, Not show it to the class, but just throw it away. The possible range of visibility scores is therefore 0 to 5.

Reliabilities of the questionnaires. We are able to make only an indirect appraisal of the reliabilities of the questionnaires. The pre-experimental and post-experimental classroom audience questionnaires are similar. In spite of the intervening treatment, the responses to these two forms correlate .73, which is probably an underestimate of the true reliability.

Results

The visibility scores were analyzed according to two criteria of classifications: Treatment (i.e., control, success, failure) and Audience. The means and summary of the analysis of variance are presented in Table 2. Since the audience scores are correlated, the appropriate error term for it and the interaction is the interaction among *Ss* within treatment and audience, labeled "Error (w)" in Table 2.

TABLE 2

MEAN VISIBILITY SCORES AND SUMMARY OF ANALYSIS OF VARIANCE ACCORDING TO TREATMENT AND AUDIENCE

	Control ($N=12$)	*Success* ($N=24$)	*Failure* ($N=24$)
Kindergarten	3.50	3.83	3.63
Classroom	3.42	3.42	3.12
High School	3.17	3.29	2.50

	df	*Sums of Squares*	*Mean Squares*	*F*	*p*
Treatment	2	6.78	3.29	—	—
Audience	2	16.15	8.07	10.12	$<.01$
Treatment × Aud.	4	3.69	0.92	—	—
Error (b)	57	215.13	3.77		
Error (w)	114	90.83	.7917		

Only the audience effect is statistically significant. The children are willing to be most visible to younger kindergarten children, next to their own classmates, and least visible to the supposed high school audience. By *t* test, each of the three audience means differs from the others at the 5 per cent confidence level or better. Though the Treatment × Audience interaction is not significant, the means in Table 2 are all consistent with the hypothesis that desire for visibility is greater after success, less under control conditions, and least following failure. Boys and girls did not differ in their responses to the experimental treatments.

In summary, the major finding from this study is that the prestige of the anticipated audience is an important determinant of how visible children want to be in front of that audience.

Experiment B

The above experiment indicated that children want to be less visible to a higher status audience than to one of classmates or younger children. Although there was a tendency for failure to create a desire for less visibility, this finding was not statistically significant.

The present study was designed to take advantage of some of the above results, principally by having each child both succeed and fail. We reasoned that the greater precision available from having each subject act as his own control might clarify the success-failure effect, and, in addition, yield information on the effects of the sequence of success-failure, or failure-success, on the degree of exposure the child will risk.

There is a further novel aspect of the second experiment. Previous studies by the writers indicated that, under speed instructions, failure leads to more rapid subsequent performances, whereas success leads to slower performances (1). The present instructions to the children building the models was "to work as carefully as possible." Our expectation was that failure would lead in the future to slower work, and that success would have the opposite effect.

Method

Subjects. The *S*s were 30 children, all girls, aged 9 to 12 years, who were attending a day camp where the experiment was carried out. (It will be recalled that no sex differences were found in Experiment A, so we felt justified in working with a totally female sample.)

Procedure. The instructions, task, and success-failure manipulations were the same as in Experiment A. The changes were that each child had both a success and failure experience, in most cases, on successive days. The sequence of success and failure varied so that 15 *S*s were assigned at random to one sequence, and 15 to the other.

The questionnaire was changed in several respects: (a) the pre-questionnaire was omitted; (b) the kindergarten audience was omitted; (c) the classroom audience was changed to "unit," which was the face-to-face peer group in the camp. As the higher status audience, the high school was retained.

To take full advantage of the visibility categories which evolved from the scoring check group (*see* above), the following categories were used. Illustrated is the pattern of responses which were scored as maximum visibility.

Yes	Make one like it in front of the unit.
Yes	Hold it up in front of the unit.
Yes	Display it in the unit ***with*** my name on it.
No	Display it in the unit ***without*** my name on it.
No	Keep it, but not show it to anyone.

Finally, the time the child took to complete the model was recorded.

Reliabilities of questionnaire responses. The reliabilities of the visibility scores may be appraised indirectly by correlating *Ss*' responses to the unit and high school audience questionnaires, under the same experimental treatments. The four correlations are .72, .74, .46, and .95.

TABLE 3

MEAN VISIBILITY SCORES ACCORDING TO SEQUENCE, TREATMENT, AND AUDIENCE

($N = 15$ in each cell)

Sequence:	Success-Failure		Failure-Success	
Treatment:	*Success*	*Failure*	*Failure*	*Success*
Audience:				
Unit	3.13	3.00	2.40	3.53
High School	2.60	2.67	2.60	3.40

TABLE 4

SUMMARY OF ANALYSIS OF VARIANCE OF VISIBILITY SCORES

	df	*Sums of Squares*	*Mean Squares*	*F*	*p*
Sequence	1	0.54	0.54	—	—
Treatment	1	7.50	7.50	8.86	$< .01$
Audience	1	1.20	1.20	—	—
Seq. × Treatment	1	6.53	6.53	7.72	$< .01$
Seq. × Aud.	1	1.63	1.63	1.93	$< .20$
Treatment × Aud.	1	0.53	0.53	—	—
Seq. × Tr. × Aud.	1	0.12	0.03	—	—
Error (b)	(28)	226.13	8.076	—	—
Error (w)	(84)	71.07	0.846	—	—

Results and Discussion

The two scores available for analysis are the visibility to the unit and to the high school assembly. Five is the maximum score possible to each audience. An analysis of variance by Sequence, Treatment (success-failure), and Audience was performed on these data. The means are presented in Table 3 and the summary of the analysis of the variance, in Table 4.

The success-failure main effect and sequence × success-failure interaction are both significant at beyond the 1 per cent confidence level. Reference to Table 3 indicates that the children are willing to be more visible with their products after success than following failure. In addition, *Ss* want to be most visible when success has followed a previous failure

experience. Also, when failure is the second experience, the preferred visibility is considerably higher than when failure is the first experience. In fact, in the condition where failure follows success, visibility is not much changed from the initial success experience that this group had.

There is a faint tendency for the Sequence × Audience interaction to be significant ($p < .20$). Apparently, when success comes first, *Ss* want to be less visible to the high school audience than to their unit, and this is true also after the subsequent failure. With initial failure the girls want to be equally invisible to both audiences and equally highly visible to both following the ensuing success.

It will be recalled that the major finding in Experiment A was that the children, regardless of success or failure, wanted to be less visible to a high school audience than to either their classmates or to kindergarten children. The appropriate comparisons for replication in the present data are the first experiences in both sequences. There is only a partial tendency to confirm the previous results. Initial success leads to a desire for greater visibility to the unit as compared to the high school assembly, but after failure, there are no differences attributable to the projected audience. One explanation is that we erred in taking the camp unit to be analogous to the classroom. The unit remains as a group for only two weeks compared to the nine-months duration of the classroom, and we actually experimented with many of the children quite early in the two-week period. If the unit members were still strange to each other, they may be as threatening an audience for poorly done work as the obviously awesome high school students. At any rate, the confirmation of the earlier findings must remain equivocal.

So far as visibility is concerned, the children are willing to be more visible after they have performed a task successfully than after failure, and they will accept greatest visibility if the success has followed a previous failure.

Success, failure and carefulness. The *Ss* were instructed to be as careful as possible in constructing their model and to take as much time as they needed to do a good job. They were timed from the point at which they began the construction to when they signalled *E* that they were finished. An obvious expectation is that when they previously failed they will spend more time on their next model; and that success will give them confidence in their model building talents and so permit them to hurry through.

In Table 5 are given the mean times to complete the models under the various experimental treatments. During the session following success nine of the 15 *Ss* spent less time building the model, whereas after failure only four children speeded up. The two sets of difference scores do not differ significantly, however ($t = 1.20$, $p > .20$). The evidence is only suggestive that failure induces more care in subsequent performances. This tendency is true only for conditions where the standard of excellence is a careful

performance; the evidence is ample that under speed instructions failure leads to more careless performance (e.g., 1).

TABLE 5

MEAN TIMES IN MINUTES TO COMPLETE MODELS

	SESSION		
	1	2	2—1
Session 1 is Success	8.50	7.66	−0.84
Session 1 is Failure	7.67	8.77	+1.10

SUMMARY

Two studies were reported in which children chose how visible they wanted to be to audiences of various prestiges, depending on whether they had previously been praised or reproved for their performance on a model building task. In the first experiment, children wanted to be most visible to a younger audience, next to their classmates, and least visible to an older, high school audience. Whether they had succeeded or failed on the task made no difference in their preferred visibility.

In the second study, each child was given both a success and a failure experience on successive days, with the sequence varied across children. Children want to be more visible after their success than following their failure experiences. Also, the preference for the greatest exposure occurs when success has followed a previous failure.

The concepts of pride and shame are used to explain these findings. When children anticipate feelings of pride, they will choose to make themselves and their competencies visible. Conversely, the anticipation of shame disposes them to conceal themselves and their inadequacies.

REFERENCES

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A FACTOR ANALYTIC STUDY OF CHILD-REARING BEHAVIORS

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Fundamental to most theories of personality development is the assumption that parents display consistent modes of behavior which serve as antecedent conditions for the behavior of their offspring. A variety of descriptive terms have been used to denote these assumed behavioral consistencies, such as "over-indulgent," "authoritarian," "permissive," "castrating," etc., but these terms do not always lead to efficient description because they may sometimes connote combinations of behavior which are not empirically consistent nor mutually exclusive.

The purpose of the present study was to derive, by means of a factor analysis, some dimensions which may underlie parental child-rearing behaviors. Factor analytic procedures have proved useful in exploratory studies of this type in other areas of psychology, and a few similar studies have been attempted in the area of child development (1, 3, 5). The discovery of consistent dimensions which underlie the child-rearing practices of parents would seem to be of the utmost importance to the understanding of the effects of parental behavior upon the personality development of the child.

PROCEDURES

The analysis presented in this report is based upon data collected by R. R. Sears and his associates (4) in the Harvard study of child-rearing practices. The subjects were 379 suburban New England mothers of children of ages five to six years. The mothers were interviewed concerning their child-rearing behaviors, and these transcribed interviews were coded for an extensive list of specific behaviors (*see* 4, Appendix B). From this list, 44 were chosen for inclusion in the present analysis. These represented a wide range of parental practices relevant to current developmental theory and at the same time provided adequate reliability of report. The scales representing these behaviors are briefly described in Table 1; more complete description of the scales, procedures and sample can be found in Sears, Maccoby, and Levin (4).

Two important considerations concerning this procedure must be kept in mind. Neither the selection of scales nor the subjects of this study are in

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TABLE 1

SCALES USED IN THE FACTOR ANALYSIS OF CHILD-REARING VARIABLES

No.	*Code*	*Description*	*Direction*	*N**	*r†*
1.	II-35	Severity of weaning	High: abrupt Low: gradual	347	.73
2.	II-36	Scheduling of feeding	High: rigid Low: self demand	336	
3.	II-38	Severity of mother's handling of feeding problems	High: severe pressure Low: no pressure	342	.83
4.	II-51	Severity of toilet training	High: very severe Low: not severe	349	.78
5.	II-53	Modesty permissiveness (going without clothes indoors)	High: entirely permissive Low: not permissive	330	.91
6.	II-56	Masturbation permissiveness	High: entirely permissive Low: not permissive	334	.84
7.	II-58	Sex play permissiveness (among children)	High: entirely permissive Low: not permissive	327	.81
8.	II-43	Demands for table manners	High: high demands Low: low demands	341	.70
9.	II-61	Standards of neatness, orderliness and cleanliness	High: high standards Low: low standards	355	.63
10.	II-62	Restrictions: care of house and furniture	High: many restrictions Low: few restrictions	351	.70
11.	II-65	Strictness about bedtime behavior	High: very strict Low: not strict	293	.74
12.	II-66	Strictness about noise	High: very strict Low: not strict	328	.80
13.	II-69	Restrictiveness: physical mobility	High: much restriction Low: no restrictions	328	.74
14.	III-11	Mother's response to dependency	High: strong disapproval Low: strong approval	339	.73
15.	III-18	Importance of child's doing well in school	High: very important Low: unimportant	326	.86
16.	II-73	Mother's standards of obedience (expectation)	High: instant obedience Low: no obedience expected	349	.74
17.	III-26	Demands for aggression toward other children	High: high demand Low: none	321	.80
18.	III-30	Permissiveness for aggression toward parents	High: completely permissive Low: not permissive	327	.83
19.	III-31	Severity of punishment for aggression toward parents	High: severe punishment Low: never punish	314	.76
20.	III-28	Permissiveness for inappropriate aggression toward other children	High: entirely permissive Low: not permissive	301	.70
21.	II-76	Praise for obedience	High: pays no attention Low: high praise	295	.84
22.	III-23	Praise for playing nicely	High: none Low: much praise	258	.92

* Given *N* refers to the average number of cases used in computing all correlations with the scale.

† Inter-rater reliabilities, corrected by the Spearman-Brown formula, are presented for all cases in which both raters made a scalar judgment.

TABLE 1 (*continued*)

SCALES USED IN THE FACTOR ANALYSIS OF CHILD-REARING VARIABLES

No.	*Code*	*Description*	*Direction*	*N**	*r†*
23.	II-45	Praise for good behavior at the table	High: none Low: much praise	297	.92
24.	III-22	Permissiveness for aggression among siblings	High: very permissive Low: not permissive	273	.75
25.	III-46	Use of physical punishment	High: frequent use Low: never uses	339	.85
26.	III-36	Extent of use of rewards	High: regular use Low: never uses rewards	325	.81
27.	III-47	Use of deprivation of privileges	High: frequent use Low: never uses	342	.80
28.	III-57	Extent of use of "reasoning"	High: considerable use Low: never uses	203	.59
29.	III-60	How often threaten to punish, then not follow through	High: very often Low: never	333	.94
30.	III-66	Who disciplines, mother or father	High: always mother Low: always father	340	.95
31.	III-74	Responsibility for policies regarding children	High: father entirely Low: mother entirely	346	.78
32.	IV-13	Mother's evaluation of father	High: high esteem Low: very critical	344	.78
33.	IV-19	Dissatisfaction with the current situation	High: very dissatisfied Low: entirely satisfied	329	.79
34.	IV-22	Mother's self-esteem	High: high self-esteem Low: low self-esteem	343	.66
35.	IV-31	Mother's child-rearing anxiety	High: extremely anxious Low: none	336	.66
36.	II-23	Amount of mother's affectionate interaction with baby	High: great deal Low: none	348	.80
37.	II-24	Fun taking care of small baby	High: great deal Low: none	340	.84
38.	II-21	Mother's responsiveness to infant's crying	High: very responsive Low: unresponsive	341	.82
39.	III-73	Mother-father disagreement about child-rearing policies	High: much disagreement Low: perfect agreement	349	.78
40.	III-65	Nature of affectional bond, father to child	High: father hostile Low: father very warm	337	.83
41.	III-13	Affectional demonstrativeness, mother to child	High: very demonstrative Low: none	325	.76
42.	III-14	Extent mother plays with child just for pleasure	High: practically never Low: frequently	321	.80
43.	IV-14	How mother felt when she discovered she was pregnant	High: displeased Low: delighted	340	.94
44.	IV-15	How father felt when he discovered wife was pregnant	High: displeased Low: delighted	318	.92

* Given *N* refers to the average number of cases used in computing all correlations with the scale.

† Inter-rater reliabilities, corrected by the Spearman-Brown formula, are presented for all cases in which both raters made a scalar judgment.

TABLE 2

ANALYSIS OF CHILD-REARING VARIABLES: RAW CORRELATION MATRIX

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1.		15	06	11	-00	-10	-05	06	-05	04	03	07	05	04	02	-05	00	-03	10	07	-01	-(
2.	..		-01	04	-03	-11	-07	19	08	16	07	03	12	-03	-00	-04	07	-04	02	16	17	-(
3.	..	..		22	-07	-10	-13	16	10	18	04	05	12	08	04	09	11	-18	12	-01	08	(
4.	..	..	..		-30	-25	-25	20	19	18	06	17	-01	22	15	14	04	-27	14	02	11	-(
5.	..	..	..	..		55	62	-18	-13	-32	-02	-24	-08	-20	-22	-20	15	39	-25	13	07	(
6.	..	..	..	..	..		64	-18	-14	-26	-01	-20	-22	-25	-25	-14	22	37	-23	11	-01	(
7.	..	..	..	..	..	..		-17	-11	-27	01	-26	-13	-19	-26	-12	09	39	-29	10	05	(
8.	..	..	..	..	..	..	..		34	39	24	17	21	03	08	22	-05	-18	14	-07	12	-1
9.	..	..	..	..	..	..	..	..		35	25	20	08	03	12	27	-16	-29	14	-01	04	-1
10.	..	..	..	..	..	..	..	..	..		19	34	14	12	21	31	-11	-26	22	-14	01	-(
11.	..	..	..	..	..	..	..	..	..	..		23	06	04	03	17	-10	-08	-07	01	08	-(
12.	..	..	..	..	..	..	..	..	..	..	..		07	15	27	24	-13	-14	11	-22	-07	-1
13.	..	..	..	..	..	..	..	..	..	..	..	..		-02	09	03	-04	-12	07	-13	03	-(
14.	..	..	..	..	..	..	..	..	..	..	..	..	..		16	17	-03	-16	07	-10	00	-1
15.	..	..	..	..	..	..	..	..	..	..	..	..	..	..		07	03	-07	14	05	-05	-(
16.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		-06	-32	13	-10	08	-1
17.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		05	15	41	05	-(
18.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		-47	08	-15	-(
19.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		-07	-02	-1
20.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		12	1
21.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		2
22.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
23.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
24.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
25.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
26.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
27.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
28.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
29.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
30.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
31.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
32.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
33.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
34.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
35.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
36.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
37.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
38.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
39.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
40.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
41.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
42.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
43.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
44.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

TABLE 2 (*continued*)

ANALYSIS OF CHILD-REARING VARIABLES: RAW CORRELATION MATRIX

	23	*24*	*25*	*26*	*27*	*28*	*29*	*30*	*31*	*32*	*33*	*34*	*35*	*36*	*37*	*38*	*39*	*40*	*41*	*42*	*43*	*44*
1.	02	03	04	−04	−02	06	08	04	00	−11	04	−08	13	−09	01	−04	−01	−00	−08	07	−01	09
2.	12	−05	−04	04	06	−00	01	02	05	02	−03	−08	21	−12	−13	−26	01	−02	−00	06	−00	−04
3.	−10	−08	14	09	07	−13	−06	02	−05	−03	−03	−06	13	02	01	−04	16	−04	01	−08	03	−02
4.	−01	−14	28	09	13	−22	−01	−01	−10	−15	16	−15	19	−15	−13	−11	14	09	−08	08	08	10
5.	−00	12	−29	01	−04	11	−04	−09	11	15	02	14	−07	01	08	07	−11	−04	15	−09	−05	−06
6.	03	01	−24	04	−13	14	−13	−02	04	10	11	13	−00	10	07	09	00	07	16	−12	−04	01
7.	02	10	−26	10	−08	10	−06	−02	09	06	09	11	−11	02	07	01	−02	03	19	−11	−03	−05
8.	−03	−01	04	14	17	06	−02	−02	−03	−00	−09	06	04	−05	−04	−07	−03	02	06	−07	03	00
9.	−08	−00	−02	19	25	15	−15	−01	−01	16	−06	17	−07	−02	−00	−03	−10	−17	14	−15	−07	−09
0.	−03	−08	10	09	14	03	00	01	−11	−01	−05	05	04	02	−05	−10	01	−01	06	00	−04	−06
1.	16	04	−00	05	20	−00	−06	−16	00	08	−14	12	−12	−01	−10	−06	−04	−04	00	−12	−12	−13
2.	−08	−08	13	02	02	−06	04	−04	04	−11	−00	−10	03	−07	−09	−09	01	03	−09	05	02	01
3.	−02	09	00	00	08	14	−04	14	−04	01	01	06	−01	07	−05	02	−03	−10	04	−04	−13	−09
4.	06	−02	21	00	21	−18	12	09	−09	−15	04	−03	−04	−10	−10	−14	09	06	−14	15	−01	−04
5.	−00	−11	12	−01	08	−03	01	−01	−09	−03	01	−03	−05	01	06	−07	01	−08	−05	02	11	−05
6.	05	−30	16	19	31	−08	−09	01	−00	02	−06	06	−00	−04	−08	−12	03	−17	00	−02	−03	−10
7.	10	09	11	−05	14	−07	00	−10	07	−05	09	−07	06	10	−03	−02	01	12	01	05	−07	00
8.	−08	13	−20	−11	−29	21	−03	−01	12	03	00	−02	00	04	05	22	03	04	04	−04	10	04
9.	−12	−08	40	08	22	−14	06	08	−09	−08	06	−18	16	03	−00	−06	05	10	00	03	−09	00
0.	07	30	01	−04	00	−09	−08	−10	12	10	09	01	04	01	04	−09	−12	04	05	06	07	10
1.	23	−02	−01	−01	05	−01	−07	02	−05	03	03	−09	−04	00	−10	02	−09	−01	−03	08	−07	−03
2.	37	16	−16	−11	−20	−16	−09	−00	03	−00	−03	−05	−02	−09	−04	−01	−08	00	−18	18	09	04
3.	..	−07	−06	−09	05	−12	04	−19	06	02	04	−04	−02	−12	−15	−12	−01	−05	−17	17	08	00
4.	..	..	−00	−00	−08	01	−11	−02	08	−02	06	−16	04	−05	00	01	09	11	−04	08	15	−12
5.	..	..	..	11	16	−33	−05	−09	−06	−10	09	−14	05	−04	−03	−01	11	12	−07	01	05	−03
6.	..	..	..	..	23	00	−08	00	−00	04	00	13	−11	03	05	−10	−01	−10	14	−21	−02	−12
7.	..	..	..	..	..	−04	−06	−01	06	−02	−07	13	−14	04	−02	−13	11	00	02	−06	−04	−10
8.	..	..	..	..	..	..	−11	11	10	15	−05	15	02	12	19	10	−05	−06	19	−08	−08	02
9.	..	..	..	..	..	..	..	06	−01	−21	14	−25	18	−01	−01	−00	21	09	−07	09	12	15
0.	..	..	..	..	..	..	..	..	−34	−06	06	01	00	02	08	02	−05	−08	05	−02	04	03
1.	..	..	..	..	..	..	..	..	..	13	−02	−02	−02	−01	00	−01	02	−09	−04	00	00	05
2.	..	..	..	..	..	..	..	..	..	..	−23	16	−18	09	04	00	−56	−46	15	−07	−19	−24
3.	..	..	..	..	..	..	..	..	..	..	..	−32	32	−11	−12	05	22	18	−10	11	17	22
4.	..	..	..	..	..	..	..	..	..	..	..	..	−65	09	14	−02	−26	−16	23	−16	−16	−15
5.	..	..	..	..	..	..	..	..	..	..	..	..	..	−04	−06	04	30	15	−07	11	07	11
6.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	22	−09	−18	29	−30	−24	−22
7.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	00	−05	15	−08	−11	00
8.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	−03	01	08	−12	−02	01
9.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	−06	01	17	21
0.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	−18	19	06	28
1.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	−47	−19	−06
2.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	09	07
3.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	−52
4.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

any sense statistically "representative." The selection of these 44 scales from the total of more than 200 reflects, to an extent, the theoretical biases of the experimenters. The subject sample was chosen from two metropolitan suburbs of the north-eastern United States, and certain parent-child pairs, such as those from broken homes or those in which the child was a twin, were excluded from the sample. The dimensions which emerge from a factor analysis depend in part on the scales and the subjects who are used in the study.

Although not directly related to the factor analytic procedure, another consideration may be important. The scales used in this study refer to the mother's report of her own behavior. Little is known about the veracity of mothers' self-reports.

The extent of the interrelationship among the 44 variables was determined by computing the product-moment correlations between the score on each variable and every other variable. Scores were not available for all subjects on all scales, because some scales did not apply to all subjects and because there was insufficient evidence for making a scalar rating for some subjects on some scales. Therefore, it was not possible to compute intercorrelations using all the subjects in the sample. Table 1 indicates the average number of cases used to compute the correlation of each scale with every other scale. Since the lowest number used was greater than 200, and since there is little evidence of a systematic bias in the elimination of subjects, this condition probably does not seriously limit the results of the study.

The intercorrelation matrix was factor analyzed by the centroid method, and the resulting centroid factors were rotated by an orthogonal graphic method until what appeared to approximate simple structure was achieved. In order to reduce the effects of preconceptions, a blind rotation procedure was followed until all the structures had emerged.

Results

The intercorrelations among the 44 child-rearing variables are presented in Table 2. For the most part, the degree of intercorrelation is low. This fact alone suggests that there is no strong general factor underlying the child-rearing behaviors included in this study. On the other hand, any correlation of approximately .14 or larger meets the criterion of statistical significance at beyond the .05 level, and 226 correlations meet this criterion.

Despite the large number of low order and zero order correlations in the intercorrelation matrix, inspection of the matrix indicates that there are apparent clusters of variables which seem to be mutually interrelated. For this reason, it was decided that factor analysis of the matrix might yield some stable group factors.

Seven factors emerged from the centroid analysis. After the seventh centroid factor was extracted, the estimated standard deviation of the partial

TABLE 3

ANALYSIS OF CHILD-REARING VARIABLES: ROTATED FACTOR MATRIX

	FACTORS							
Scale No.	A	B	C	D	E	F	G	h^2
1. ...	11	—14*	—03	—05	03	07	05	04
2. ...	09	—11	—18	01	—10	—02	*37**	20
3. ...	22*	—06	01	16	17	—11	14	14
4. ...	*34**	—25	—15	24	19	06	02	30
5. ...	*—66**	11	10	09	00	—05	14	49
6. ...	*—70**	04	19	05	—01	—11	11	55
7. ...	*—71**	06	13	18	—08	—14	07	59
8. ...	*37**	—02	04	*32*	—15	10	*35*	40
9. ...	*35*	19	—05	*38**	—11	12	13	35
10. ...	*48**	—01	04	*32*	—13	08	19	39
11. ...	10	14	—08	26	—20	10	*33**	26
12. ...	*38**	—13	00	21	—12	20	00	26
13. ...	18	08	06	—05	—05	—02	*32**	15
14. ...	*38**	—07	*—36*	—12	—06	04	03	30
15. ...	*32**	—02	—01	03	05	18	—06	14
16. ...	32	10	—09	*45**	—05	—05	02	33
17. ...	—23	—05	—10	06	*45**	—01	19	31
18. ...	*—51**	—09	—20	—17	*—35*	16	00	48
19. ...	*43**	—13	02	15	*41*	—06	—12	41
20. ...	*—30*	—09	—05	—10	*42**	*35*	21	45
21. ...	05	—15	04	—09	00	—05	*24**	10
22. ...	—03	—01	—28	*—38**	—01	09	08	24
23. ...	—07	02	*—38**	*—37*	—06	—00	21	33
24. ...	*—31**	—12	—03	06	—04	—21	09	17
25. ...	*31*	—15	—05	19	*44**	05	—14	37
26. ...	04	14	09	*40**	10	—04	05	20
27. ...	16	08	—10	*51**	13	00	08	32
28. ...	—04	07	*37**	—18	26	—11	05	26
29. ...	06	*—35**	—05	—12	09	16	—17	21
30. ...	15	01	04	—08	11	—22*	—10	10
31. ...	—20	00	05	00	07	*30**	18	17
32. ...	—06	*56**	—01	—10	09	18	23	42
33. ...	—08	*—47**	—01	04	15	01	—02	25
34. ...	—10	*59**	09	*34*	—21	13	—08	55
35. ...	10	*—56**	08	—17	19	16	*33*	53
36. ...	02	*30*	*34**	—10	14	—26	09	31
37. ...	—06	19	26*	—05	06	—04	—09	12
38. ...	—15	05	27*	00	00	—07	—11	13
39. ...	—01	*—60**	09	15	—05	—23	—06	45
40. ...	—02	*—48**	—04	—18	—04	—02	07	27
41. ...	—03	28	*41**	10	—04	20	21	34
42. ...	—04	—24	*—50**	—14	02	22	—23	43
43. ...	—07	*—42**	—15	05	—16	28	—05	31
44. ...	—13	*—51**	06	07	—09	*34*	—08	42

$M_{h^2} = 31$

* Indicates the scale's highest loading with any factor.

residuals had reduced to .06, thereby approximating McNemar's (2) criterion for stopping the analysis. The obtained communalities for the seven factors account for an average of 31 per cent of the total variance. This indicates that each factor accounts for an average of 4 per cent of the total variance. This small percentage is, of course, a result of the low average intercorrelation of the original correlation matrix.

The rotated factor matrix is presented in Table 3. All loadings of .30 and above have been italicized to indicate that they probably have a stable relationship to the factor. Six scales do not have a loading of .30 or above on any factor. The highest loading for a scale with any factor is indicated by an asterisk in Table 3. Those tests which do not have any loading of .30 or above will be included in parentheses in the interpretive summary of the factor with which they have the highest loading. It must be acknowledged, however, that a test with a loading of less than .30 in a particular factor has less than 9 per cent of its variance in common with that factor, and therefore is contributing little to the definition of the factor. Factor A has six loadings of .40 and above, and factor B has eight loadings of .40 and above, indicating that they are probably better defined by this analysis than the other five factors which have four or less loadings of this magnitude. Factors F and G are very poorly defined.

Interpretation of the Factors

Factor A clearly seems to relate to the *strictness or nonpermissiveness of parental behavior.*

Scale		*Loading*
10.	house and furniture restrictions	.48*
19.	punishment for aggression toward parents	.43*
12.	noise restrictions	.38*
14.	disapproval of dependency	.38*
8.	demands for table manners	.37*
9.	standards of neatness and orderliness	.35
4.	severity of toilet training	.34*
15.	importance of doing well in school	.32*
16.	standards of obedience	.32
25.	use of physical punishment	.31
(3.	severity of handling feeding problems	.22*)
20.	permissiveness for aggression toward other children	—.30
24.	permissiveness for aggression toward siblings	—.31*
18.	permissiveness for aggression toward parents	—.51*
5.	modesty permissiveness	—.66*
6.	maturbation permissiveness	—.70*
7.	sex play permissiveness	—.71*

* Indicates that the scale has its highest loading with this factor.

Although the three scales which have the highest loadings with this factor suggest nonpermissiveness in the sexual area, the factor seems to deal with a much more pervasive and general content area. The same

mothers who were nonpermissive with respect to sexual behavior also tended to require the observance of property restrictions, neatness, orderliness and cleanliness, quietness, obedience, nonaggression, and expected the child to do well in school. They tended not to permit dependency and were severe in their toilet training procedures. It is interesting to note that two scales involving punishment, numbers 19 and 25, are to some extent loaded with this factor, while the scale using reasoning, number 28, does not appear related to the factor.

Factor B is less easily labeled, but it seems to be a reflection of the *general family interaction or adjustment.*

Scale		*Loading*
34.	mother's self esteem	.59*
32.	mother's evaluation of the father	.56*
36.	affectionate interaction with the baby	.30
(1.	severity of weaning	—.14*)
29.	threaten punishment and not follow through	—.35*
43.	mother's displeasure when she discovered pregnancy	—.42*
33.	dissatisfaction with the current situation	—.47*
40.	father's hostility toward child	—.48*
44.	father's displeasure when he learned of pregnancy	—.51*
35.	mother's child rearing anxiety	—.56*
39.	mother-father disagreement	—.60*

This factor seems to represent a wide range of content involving the mother's attitudes toward herself, the father, and the child, the father's attitudes toward the child, and the extent of agreement between the mother and father as to the best child-rearing procedures. It appears that the mother who evaluated herself highly also had high regard for the father and that there was substantial agreement between mother and father. The mothers who scored in the positive direction on this factor also wanted the child and tended to have a consistent affectionate relationship with the child.

Factor C appears to be primarily concerned with the *warmth of the mother-child relationship.*

Scale		*Loading*
41.	mother's affectionate demonstrativeness toward child	.41*
28.	extent of use of reasoning	.37*
36.	mother's affectionate interaction with child	.34*
(38.	mother's responsiveness to infant's crying	.27*)
(37.	fun taking care of small baby	.26*)
14.	disapproval of dependency	—.36
23.	praise for good behavior at table (high : none)	—.38*
42.	time to play with the child (high : little time)	—.50*

If all the scales loaded with this factor are scored in the direction of a warm mother-child relationship, it becomes clear that warmth forms a consistent factor. Not only do mothers who scored high on this factor have a warmer and more demonstrative relationship to the child, but also they spend more of their time with the child just for pleasure. Interestingly, the mothers who had the warm relationship with the child also tended to

use praise and reasoning rather than punishment as means of control. It is not clear, however, why the table manners scale, number 23, should be loaded with this factor when the other praise scales are not.

Factor D seems to reflect a *responsibe child-training orientation.*

Scale		*Loading*
27.	deprivation of privileges	.51*
16.	mother's standards of obedience	.45*
26.	use of tangible rewards	.40*
9.	standards of neatness and orderliness	.38*
34.	mother's self esteem	.34
8.	demands for table manners	.32
10.	house and furniture restrictions	.32
23.	praise for table manners (high : none)	—.37
22.	praise for playing nicely (high : none)	—.38*

The isolation of this factor, although it is conceptually somewhat similar to factor A, seems due to the method of control which mothers who score high on this factor tend to use. Obedience, orderliness, table manners, and general good behavior seem to be valued, but these behaviors are elicited from the children by the use of rewards, deprivation of privileges, and praise. That is, these mothers seemed to employ a reinforcement theory in training their children.

Factor E presents a clear picture of the parents' attitude toward *aggressiveness and punitiveness.*

Scale		*Loading*
17.	demands for aggression toward other children	.45*
25.	use of physical punishment	.44*
20.	permissiveness for aggression toward other children	.42*
19.	severity of punishment for aggression toward parents	.41
18.	permissiveness for aggression toward parents	—.35

The parents who had high scores on the variables with positive loading with this factor encouraged aggression, even inappropriate aggression, toward others but did not tolerate aggression toward themselves. The link between physical punishment and aggression which is found in this factor is of considerable theoretical significance. The use of physical punishment as a means of control appears related to demands for aggression so long as the aggression is not directed toward the punishing agent.

Factor F is very poorly defined.

Scale		*Loading*
20.	permissiveness for aggression toward other children	.35
44.	father's displeasure when he learned of pregnancy	.34
31.	father responsible for policies	.30*
(30.	mother does most of the disciplining	.22*)

This factor, if it does represent any stable set of relationships, would seem to involve a tendency for the mother to perceive the father as the controlling agent in the family.

Factor G is another rather poorly defined dimension. It may, however, seem to have a conceptual theme of the mother's concern for the child's physical well-being.

Scale	*Loading*
2. rigidity of the feeding schedule	.37*
8. demands for table manners	.35
11. strictness about bedtime	.33*
35. mother's child rearing anxiety	.33
13. physical mobility restrictions	.32*
(21. praise for obedience	.24*)

Whether or not these last two factors represent anything more than unstable residual factors is certainly open to question. In fact, because of the low order correlations in the original intercorrelation matrix and because of the small number of powerful factor loadings in the rotated factor matrix, the interpretation of the first five factors must be regarded as merely suggestive of significant dimensions.

Discussion

Of the seven factors which emerged from this analysis, at least four are of considerable theoretical significance. Factor A, which refers to parental permissiveness, and factor C, the warmth dimension, have been identified by many investigators as important clusters of parental behavior. For example, in the analysis of Baldwin, Kalhorn, and Breese (1) and in that of Schaefer and Bell (3), dimensions emerged which were quite similar to those obtained from the present study. Sewell, Mussen, and Harris (5), however, did not find a single permissiveness factor but several permissiveness factors.

The emergence of a warmth factor orthogonal to a permissiveness factor in the present study leads to the interesting conclusion that the two dimensions are independent. Therefore, it would not be surprising to find parents who were either high or low on both warmth and permissiveness in addition to the stereotyped "rejecting parent" who is cold and restrictive (1, p. 13).

The family interaction or adjustment dimension, factor B, has also been identified by other investigators but less often emerges as a separate factor. Baldwin *et al.* obtain a cluster which refers to this dimension (1, p. 7), but no corresponding factor emerges from their factor analysis. Similarly, Schaefer and Bell (3) did not isolate this dimension. What seems to have happened in both of these studies is that the family interaction or adjustment variables emerged as part of a more general "warmth" dimension. There is a similarity between factor B of the current study and the third factor of Sewell *et al.* (5, p. 144), which is identified as a "*parent-child interaction factor*," but factor B is more broadly defined.

Although factor E, which refers to the treatment of overt aggression, emerges as an independent dimension in the present analysis, no similar

factor seems to be identified in the other factor or cluster analyses reported in the literature. However, none of the other studies dealt so extensively with aggression. Factor E does have theoretical relevance in that it shows an empirical link between the use of physical punishment and the encouragement of externalized aggression in all directions except toward the punishing agent.

The relevance of factors D, F, and G is less clear than that for the other four factors. Factor D appears to be a stable dimension, and it is of some interest that the use of rewards and deprivation of privileges is linked to the mother's concern that her child be well mannered. As was pointed out previously, there may be some doubt as to the stability of factors F and G.

In general, the results of this factor analysis agree more closely with the findings of Baldwin, Kalhorn, and Breese (1) and Schaefer and Bell (3) than they do with those of Sewell, Mussen, and Harris (5), although all four studies seem to indicate that there is no *one* general dimension underlying all parental behavior. The differences between studies may be accounted for partially by the different variables studied. Just how the factors which have been isolated in this and other factor analytic studies serve as antecedants for the behavior of children is, of course, a subject for extensive research (1, 4).

Summary

This study is a factor analysis of 44 parental child-rearing behaviors. Behaviors were chosen which have relevance for current theories of personality development. The data used in the analysis were obtained from interviews with 379 suburban New England mothers of children of ages five to six years. Seven factors emerged from the analysis and at least five of these were identified as stable dimensions relevant to developmental theory. The results of this analysis were compared with the results of similar studies by other investigators.

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IMITATION AND THE LEARNING OF INCIDENTAL CUES BY PRESCHOOL CHILDREN

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The process by which one person learns to perform an act by observing the behavior of another is usually referred to as imitation. Much of learning after infancy, especially that which occurs in a social context, is dependent upon some such process of imitation. This general phenomenon of learning by imitation has two components: one, the learning of a new response by the matching or copying of a model's response; and two, the performance of the response in an *appropriate* situation in the *absence* of the model. The first of these components has received comprehensive analysis by Miller and Dollard (2). The second component, which has received relatively little attention in the past, is the primary focus of this study.

Miller and Dollard (2) refer to the second component of learning by imitation as "independent learning" and formulate the problem as one of generalizing from the situation in which the model is present to the situation in which the model is absent. They demonstrate that such learning can take place in first grade school children when the relevant common elements are very vivid and obvious, but they do not analyze this process of generalization any further.

More recently Church (1) has defined the problem of learning by imitating in terms of "learning of incidental cues" and demonstrates that such learning does occur in rats. Rats which have learned to follow leader rats will learn, while following leader rats which are responding to a light cue, to make the "correct" response to the light cue. Church further notes that this learning by imitation is as efficient for rats as learning by trial and error.

Church's findings suggest the following hypothesis: In a learning situation in which the subject's cue for the making of a response is a

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model's performance of that response, the subject will at the same time be learning other environmental cues which are reliable indicators of his model's behavior, but which, in the beginning, were apparently incidental to the subject's task; in the absence of his model the subject will respond to the previously incidental cue as a primary cue and will perform the response appropriately.

The Experiment

The following experiment was designed to test this hypothesis: Two groups will learn a simple two-choice discrimination problem with color-shape cues; the control group will receive no previous training; the experimental group will receive a prior experience with a similar problem in which a model's response will be the primary cue and color-shape a secondary or incidental cue. The difference in number of trials for the two groups to learn the discrimination problem will be an index of the learning of the incidental cue occurring during the experimental group's pretraining.

Subjects

The subjects were 26 children, all members of a single nursery school in the Metropolitan Boston Area. The children were from upper middle class professional and business families with a median IQ of about 130. The ages ranged from 3 years, 7 months, to 4 years, 10 months. There were 14 boys and 12 girls; the two sexes were equally distributed between the two groups.

Apparatus

The experiment was conducted in a room approximately 9 by 25 feet with a door midway one of the long sides. At one end of the room two containers of approximately the same volume (50 cubic inches) and same height (7 inches) were placed 4 feet apart on children's chairs so that they were approximately 2 feet above the floor. One of the containers was rectangular in shape and black in color; the other was cylindrical in shape and red in color.

Procedure

Discrimination problem. A female assistant brought the subject from his regular nursery school activity to the experimental room on the pretext of playing a game. He was given the following instructions: "We are going to play a game. Here we have two boxes. I am going to hide a piece of candy in one of the boxes. You are to guess which box the candy is in. If you guess right you get to keep the candy; if you guess wrong you do not get any candy. We will play the game a number of times so you can win several pieces of candy." The subject left the room and the candy was placed in one of the containers. The subject was brought into the room

again and stood about 9 feet from the two containers. He made his choice by going to one of the containers and looking in it and picking up the candy if he made a correct choice. The subject left the room and a new trial was started.

During the series of trials the candy was always placed in the same one of the two boxes. The boxes were alternated in position in a fixed pattern from trial to trial: LRLLRRLRLLRR, etc. The box which was the correct cue was alternated from subject to subject. The trials were non-corrected and the subject was given a series of trials until he reached the criterion of five successive trials without error.

Experimental group pretraining. The subjects of the experimental group first learned to respond to the cue of a model's behavior. They were introduced to a similar situation with similar instructions as that described above, the difference being that the containers were identical and the female assistant played the game, too. The assistant always had her trial first in the presence of the subject and always went to the container which held candy. If the subject went to the same container, he, too, found candy. After the subject had learned to go to the same container that the model chose, the differentiated containers described above replaced the identical ones. The trials continued without interruption with the subject copying the model's response for eight trials. During this time the model was consistently going to the same box differentiated from the other by shape and color but alternated in position. At the end of the eight trials the model was called away on business and the game interrupted. When the model did not return in a short time, the game was resumed without the model as described above.

Results

The subject is assumed to have learned the problem on the first trial of the criterion series and this trial is the one reported in the results.

TABLE 1

COMPARISON OF CONTROL AND EXPERIMENTAL GROUPS IN LEARNING A TWO-CHOICE DISCRIMINATION PROBLEM

	Mean No. of Trials to Criterion		*Range of Trials to Criterion*		*Mean No. of Errors*	*Range of Errors*
Control Group ($N=13$) ...	9.3	9.3	2–20	2–20	3.8	1–9
Experimental Group ($N=13$)	2.2*	10.2†	1– 7*	9–15†	.7	0–3
Difference	7.1‡	.9			3.1‡	

* Number of trials responding independently of model.
† Number of trials including eight trials responding to cue of model (pretraining trials).
‡ Significant at .001 level.

The experimental group, as shown in Table 1, learned the discrimination problem in significantly fewer trials, after beginning to respond independently of the model, than did the control group. Furthermore, with pretraining trials in which the experimental group was responding to the model's cues included, there were no significant differences between the groups in terms of total number of trials to learning criterion. Another index of learning is number of errors made. Table 1 shows that the experimental group made significantly fewer errors than did the control group in learning the problem.

Interpretation and Discussion

The difference between the two groups in learning the discrimination problem represents the amount of learning of the color-shape cues which occurred during the pretraining when the experimental group was responding to the model's behavior as the primary cue. The learning of incidental cues does occur in such circumstances and may be considered as confirmation of the original hypothesis.

It is interesting to note that when the number of trials to criterion of the control group are compared with the total number of trials to criterion, including the pretraining trials, for the experimental group no significant difference is found, suggesting that learning by imitation was as efficient as learning by trial and error. It is possible, although it is not shown by the data, that several of the subjects may have completely learned the incidental cue in *less* than the eight pretraining trials and that learning by imitation is more efficient than trial-and-error learning in terms of number of trials. The number of errors to criterion, however, might also be used as an index of learning efficiency and such data are available. The experimental group made significantly fewer errors in reaching criterion, suggesting that imitation is a more efficient means of learning—especially if errors are costly. It should be kept in mind in this discussion that there were no instructions to learn from the model—the learning was "incidental." Instructions which served to point up the presence of incidental cues and to bring the process into conscious operation would undoubtedly increase the utility of the process which has here been hypothesized and demonstrated.

It should be noted that, although the groups are too small to draw definite conclusions, ability to solve this problem under either control or experimental conditions does not seem to be related to sex, CA, mental age, or IQ within this population.

Summary

It is hypothesized that the process of learning to perform an imitated response in an appropriate situation in the absence of the model is essen-

tially that of learning of "incidental" cues. An experiment testing this hypothesis is reported. Preschool children while utilizing a model's response as a primary cue for the performing of that same response did learn, in the absence of instructions, a secondary "incidental" cue for the performance of that response. The learning of a two-choice discrimination problem for preschool children appeared to be more efficient using the imitation method than using the trial-and-error method.

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A DEVELOPMENTAL STUDY OF RACIAL AWARENESS IN YOUNG CHILDREN[1,2]

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There have been few studies with young children concerning the development of racial attitudes and awareness. Those published indicate that children as young as three and four are capable of making discriminations between the physical characteristics of Negroes and whites, and that the frequency of discrimination increases with increasing CA (1, 2, 3, 5, 6, 8, 10). The studies also indicate that racial discrimination by Negro children is dependent upon *S*'s skin color and that among northern children both Negro and white show a preference for the physical characteristics associated with white children (5, 7, 9). These findings are of great interest. However, further information is necessary for the understanding of the development of racial attitudes. The aim of the present study is to provide information of this type. The study investigates the responses of Negro and white children from three through seven years on a variety of tests concerned with racial awareness and racial attitudes.

METHOD

Subjects

The *S*s were 225 children enrolled in private nursery and elementary schools in Austin, Texas, a city with a population of 165,000 whites and 25,000 Negroes. The children ranged in age from 3 through 7 years. There were 25 white *S*s of each CA and the number of Negro *S*s at each CA

[1] The study was supported in part by a grant from the Hogg Foundation for Mental Hygiene of the University of Texas.

[2] The writers wish to thank Miss Billye McClendon, Miss Emma Lois Smith, and Mr. Robert Bell, who assisted in testing the children; and the directors and teachers of the following nursery and elementary schools in Austin, Texas, where the study was done: Tarrytown Methodist, All Saints, Jack and Jill, Jeffrey, St. Austin's, Ebenezer, Howson, Twelfth Street, Greater Mount Zion, and Holy Cross.

[3] Now at Lehigh University.

from 3 through 7 was 23, 13, 22, 17 and 20, respectively. The groups were approximately evenly divided according to sex. All the children at the nursery schools who were within the desired age levels were included, and the elementary school *Ss* were chosen at random from the class roll. In general, the white *Ss* were of a higher socioeconomic class, based upon parent occupational level, than the Negro *Ss*. The schools were not integrated and the *Ss* resided in sections of the city where play and frequent contacts with children of the other race were impossible. The *Ss*' interracial contacts were assumed, therefore, to have been primarily of an incidental nature.

Materials

Four tests were constructed for this study.[4] The purpose of the tests was to investigate children's ability to discriminate the physical differences between Negroes and whites and their racial preferences and attitudes. Great care was exercised in constructing the tests so that the materials would not be a source of bias which might distort the results. The materials were reviewed by both Negro and white individuals while they were being prepared. The tests are described below.

1. *Discrimination Test.* The test consisted of 20 10 by 20 inch cards; 12 cards were related to race and 8 were used as fillers. The filler cards depicted three objects, such as two chairs and a table; some of the drawings were in color and some were line drawings. The remaining cards were divided into three sets of four cards each. On Set 1 each card contained line drawings of the heads of three children. Two of the three children were of the same race and two were of the same sex; i.e., a Negro boy, a Negro girl, and a white girl. Set 2 consisted of the same types of line drawings as Set 1, but the figures were all of the same sex. Set 3 was identical to Set 2 except that the drawings were in color. The white children had brunette hair and the Negro children had black hair. The faces were painted either a white flesh color or a warm brown, with appropriate highlights and shadows.

Two filler cards were presented first, followed by Set 1. Half of the *Ss* were then tested on Set 2 followed by Set 3 and half with Set 3 followed by Set 2. The sets were separated by two filler cards.

The *S* was shown the first filler card and was asked to show *E* the picture that differed from the other two. If *S* made an incorrect response, he was instructed concerning the basis of correct response. The same procedure was used with the second card. The instruction, "Show me the one that is different," was repeated before each of the remaining cards was presented and a noncorrectional procedure was used.

On Set 1 *S* could make a correct response by choosing the child who differed either by race or by sex, while on Sets 2 and 3 a correct response

[4] The materials for the study were constructed by Graphic Studios, Austin, Texas.

could be made only by choosing the child on each card who differed from the other by race. All of the cards were constructed so that the correct choice varied at random among the three horizontal positions (L, M, R).

2. *Doll Assembly.* Four two-dimensional masonite dolls 6 inches high were used. The dolls included a Negro boy and girl and a white boy and girl. The coloring of the dolls was similar to that of the drawings in the Discrimination Test. The girls' costumes consisted of a blouse and a skirt, and the boys', a T-shirt and shorts. The clothing was painted in light pastel shades. Each doll was divided into three pieces by divisions at the bottom of the neck and at the waist. Each section of all four dolls was interchangeable so that all degrees of consistency could be used in assembling the dolls by race and sex.

The pieces were spread in front of *S* in a random array and *S* was asked to assemble the dolls to make four children.

3. *Dolls.* The materials consisted of four small dolls made of a soft, flesh-colored plastic. Only white dolls were available and two of these were modified to create Negro dolls. One doll of each race and sex was used. The boys were clothed in identical shirts and short pants, and the girls in identical dresses.

The *S* was shown the two dolls of *S*'s sex and was asked, "Which one looks most like you?" After *S* had made a choice, the four dolls were placed in front of *S* and *S* was asked, "Which two children would you rather play with?" The linear arrangement in which the dolls were presented was varied at random among the *S*s.

4. *Incomplete Stories.* The test consisted of seven cards in color depicting play situations. The cards showed one or two central figures, with other figures in the foreground or background. The central figure on most of the cards was drawn in a rear view and was ambiguous with regard to race. The drawings were balanced so that Negroes and whites appeared equally often on the left and right and children of the same race were not grouped together. The clothing of all figures was in pastel shades, and on each card the color of the clothing differed for each figure. The cards and the stories are described below:

Card 1. A child is shown lying on the ground. Four boys, two Negro and two white, are playing in the background. The *S* was told, "This little boy was playing in the yard. Another little boy was very mean to him and pushed him down." The *S* was asked, "Which one of these little boys do you think pushed him down?" and then, "Which little boy is going to come over and see if he is all right?"

Card 2. Two women, a white and a Negro, are seated in the foreground. Approaching them from the center of the card are two girls, one a Negro and one white. The *S* was told, "These little girls have been playing in the park. Now this little girl is looking for her mother. Which is her mother?" For half of each racial group the question concerned the Negro girl and for half it concerned the white girl.

Card 3. In the foreground a Negro boy and a white boy are pulling on a rope. Each wears cowboy attire and has a gun. In the background a Negro boy and a white boy are playing. The *S* was told, "These two boys are pulling on the rope, trying to see which one can get it. Which one do you think is going to win and get the rope?" After *S* made a choice he was told, "This boy (the one who wins) is going to tie up the bad man who is one of these boys. Which one do you think is the bad man?"

Card 4. A boy in the foreground is attired in hat, mittens, and jacket. In the background are a white boy and a Negro boy. The *S* was told, "This little boy is about ready to go home from school and wants a friend to go with him. Which boy do you think he will choose to go home with him?"

Card 5. A girl is seated in the left foreground. To her right is a birthday cake on a table. Behind this and to the rear are six girls, three Negro and three white, alternated from left to right according to race. The *S* was told, "This is Ann. See her birthday cake? Her mother said that she could invite three children to her birthday party. Which three girls do you think that she is going to invite?"

Card 6. A boy is seated in the foreground looking at four children, two Negro and two white, playing in the background. The *S* was told, "This little boy is afraid to go over by these children because one of the boys always hits him. Which of the boys do you think doesn't like him and always hits him?"

Card 7. In the center background a Negro boy is seated in a red wagon. A white boy and a Negro boy stand in the background. The *S* was told, "This little boy has a new wagon and wants someone to pull him. Which boy do you think he will choose to pull him?"

Procedure

The *Ss* were tested individually at school. The Negro children were tested by a Negro examiner and the white children by a white examiner. Two orders of presentation were used. The order of presentation for half of the *Ss* was the order in which the tests are described above. For the other half the Dolls and Incomplete Stories preceded the Discrimination Test and the Doll Assembly.

Results

The tests proved to be of interest to the children and in general appeared to be appropriate for the age levels tested. The Discrimination Test and Doll Assembly did, however, appear to be difficult for the 3-year-old *Ss*. The pretraining on the filler cards on the Discrimination Test was protracted with these children, and although they were eventually able to make the correct choices, it is doubtful that they fully comprehended the nature of the task. In Doll Assembly it was difficult for these *Ss* to assemble the 12 pieces to form four dolls. There were few instances in which older *Ss* had difficulty in performing the tasks.

TABLE 1

MEAN NUMBER OF SEX AND RACE RESPONSES AND NUMBER OF *Ss* MAKING CONSISTENT SEX AND RACE RESPONSES ON SET 1 OF THE DISCRIMINATION TEST

CA	*Choices by Race (Mean)* W	N	*Choices by Sex (Mean)* W	N	*Consistent Race Choices (N)* W	N	*Consistent Sex Choices (N)* W	N
3	1.3	1.3	1.3	1.9	0	0	2	0
4	1.4	1.3	1.6	1.8	0	0	2	0
5	.7	1.4	2.8	1.9	0	1	11	2
6	1.2	1.1	2.4	2.1	3	0	11	4
7	1.4	1.4	2.5	2.6	5	5	11	10

Discrimination Test

In Table 1 are presented the average numbers of choices made on the basis of race and on the basis of sex on Set 1. There were no consistent differences among the choices made by Negro and white *Ss*. There was no tendency for the average number of race choices to increase with increasing age, but the average number of sex choices did increase. At all age levels the average numbers of choices by sex were greater than those by race.

Statistical analysis of the data for Set 1 is facilitated by the use of number of *Ss* making consistent race or consistent sex responses as the measures of response (*see* Table 1). There is a significant increase in the number of *Ss* at each CA making consistent sex responses ($\chi^2 = 35.58$, $df = 4$, $p < .01$), and a significant difference between the proportions of

TABLE 2

MEAN NUMBER OF CORRECT RESPONSES AND NUMBER OF *S*'s MAKING CONSISTENT CORRECT RESPONSES ON SETS 2 AND 3 OF THE DISCRIMINATION TEST

CA	SET 2 *Correct Responses (Mean)* W	N	SET 2 *Consistent Correct Responses (N)* W	N	SET 3 *Correct Responses (Mean)* W	N	SET 3 *Consistent Correct Responses (N)* W	N
3	1.5	2.0	1	1	1.6	1.8	1	0
4	2.9	2.4	11	4	2.8	1.8	11	1
5	3.2	2.4	16	4	3.3	2.7	16	0
6	3.9	3.1	22	7	3.9	2.8	22	3
7	4.0	4.0	25	2	4.0	4.0	25	20

Ss making consistent race and consistent sex responses ($t = 5.81$, $p < .01$). The Negro and white *Ss* did not differ significantly in frequency of consistent race responses, but a greater number of white, than Negro, *Ss* did make consistent sex responses ($\chi^2 = 5.71$, $p < .02$).

The results for Sets 2 and 3 are presented in Table 2. For both racial groups there is a consistent rise with increasing CA in the average numbers of correct responses. The average numbers of correct responses for white *Ss* are higher than those for Negro *Ss*. There is a significant difference between the number of Negro and white *Ss* making consistently correct responses on Set 2 ($\chi^2 = 12.80$, $df = 1$, $p < .01$) and on Set 3 ($\chi^2 = 31.75$, $df = 1$, $p < .001$).

Doll Assembly

The proportion of *Ss* in each age group assembling all four dolls correctly by race are presented in Table 3. There is a great and relatively consistent increase with age in the proportions in both racial groups. At all CA levels except 4 the proportion of white *Ss* assembling the dolls correctly by race was greater than the proportion of Negro *Ss*. An over-all evaluation of the differences between the racial groups yields a χ^2 of 5.54, which is significant at between the .01 and .02 levels of significance.

TABLE 3

PROPORTION OF *Ss* ASSEMBLING FOUR DOLLS CORRECTLY BY RACE

CA	*White*	*Negro*
3	.08	.00
4	.08	.22
5	.44	.18
6	.68	.25
7	.88	.70

Dolls

In Table 4 are presented the proportions of *Ss* at each CA level who chose the doll of *S*'s race as looking more like *S*. The proportion of own-race choices of the white *Ss* begins at a chance level and rises consistently through CA 6. The proportion of own-race choices of the Negro *Ss* also begins at a near-chance level at CA 3, drops slightly at CA's 4 and 5 and then rises at CA's 6 and 7. At all age levels the proportion of own-race choices was greater by the white *Ss* than by the Negro *Ss*. The difference between the total own-race choices in the two groups is highly significant ($\chi^2 = 25.28$, $df = 1$, $p < .001$).

In Table 5 are presented the proportions of own-race choices made when the *Ss* were asked to choose the dolls with whom they would rather play. The proportions begin at a chance level for both racial groups. The white *Ss* then show a consistent increase in proportion of own-race choices, while the Negro *Ss* show a consistent decrease except at CA 7. The overall proportion of own-race choices was .20 for the Negro *Ss* and .47 for the white *Ss*. The difference between these proportions is highly significant ($t = 4.50$, $p < .001$).

TABLE 4

PROPORTION OF *Ss* CHOOSING OWN-RACE DOLL AS LOOKING MORE LIKE *S*

CA	*White*	*Negro*
3	.52	.43
4	.72	.33
5	.88	.33
6	.96	.53
7	.96	.85

TABLE 5

PROPORTION OF CHOICES OF OWN-RACE DOLLS AS PLAYMATES

CA	*White*	*Negro*
3	.52	.50
4	.60	.39
5	.64	.35
6	.82	.33
7	.82	.65

Incomplete Stories

On Card 1 the *Ss* were asked which of four children, two Negro and two white, pushed a child down. For the white *Ss* the proportion of own-race choices at all ages was relatively low and did not increase with CA (*see* Table 6). A higher proportion of Negro *Ss* than white *Ss* made own-race choices. The proportion of own-race choices increased slightly from CA 3 through 7 for the Negro *Ss*, but remained relatively constant for the white *Ss*. The difference between the total number of own-race choices in the Negro and white groups is highly significant ($\chi^2 = 22.67$, $df = 1$, $p < .001$).

On Card 1 *S* was also asked which child would help the boy who had been pushed down. There were no consistent changes in response with age for either white or Negro *Ss*. The proportions of own-race choices are lower for Negro *Ss* than for white *Ss* except at CA 7; the over-all difference is not significant ($\chi^2 = 3.78$, $p > .05$).

On Card 2 there was an increase with CA in the proportion of correct identification of the child's mother for both the Negro and white *Ss*. At CA 3 the proportions are below chance, which indicates that the *Ss* may have tended to choose the mother nearer the child (the Negro mother and white child were on the left of each pair). The total numbers of correct responses do not differ significantly for the Negro and white *Ss* ($\chi^2 = .17$).

TABLE 6

PROPORTION OF OWN-RACE CHOICES OF *Ss* ON INCOMPLETE STORIES

CA	*Card 1*				*Card 2**		*Card 3*				*Card 4*		*Card 5*		*Card 6*		*Card 7*	
	a		*b*				*a*		*b*									
	W	N	W	N	W	N	W	N	W	N	W	N	W	N	W	N	W	N
3 ..	.32	.65	.52	.48	.20	.22	.64	.52	.40	.35	.44	.70	.46	.49	.36	.30	.32	.52
4 ..	.32	.56	.76	.39	.36	.72	.56	.28	.48	.35	.56	.33	.45	.52	.56	.33	.36	.33
5 ..	.40	.45	.56	.41	.92	.73	.72	.36	.32	.64	.92	.23	.65	.48	.42	.82	.40	.45
6 ..	.20	.71	.56	.47	1.00	.76	.72	.41	.40	.35	.88	.35	.66	.41	.44	.59	.32	.29
7 ..	.32	.85	.60	.75	.96	1.00	.88	.45	.20	.50	.88	.40	.85	.31	.20	.80	.32	.90

* Proportion of correct choices.

On Card 3 the proportion of white *Ss* who selected the white child as the winner of the rope was high at all CA levels and showed a general increase from CA 3 through 7. The opposite trend was found for Negro *Ss*. The choices were at a chance level at CA 3 and were either at or below this level at subsequent ages. The over-all difference between the own-race choices of white and Negro *Ss* was highly significant ($\chi^2 = 19.63$, $p < .001$).

On Card 3 the *Ss* were also asked to select a badman. No consistent developmental trends were found for either racial group in the proportion of own-race choices. In general, however, the Negro *Ss* made own-race choices more frequently than did the white *Ss* ($\chi^2 = 6.53$, $p < .01$).

The *S* was asked on Card 4 to select a child who would go home with the child in the story. There is a fairly consistent increase in the proportion of own-race choices for the white *Ss*. Except for CA 3 the proportion of Negro *Ss* making own-race choices is low. The difference between the proportions of white and Negro *Ss* making own-race choices is highly significant ($\chi^2 = 24.42$, $p < .001$).

On Card 5 *S* was asked to select children to attend a birthday party. Both racial groups made approximately chance selections at CA's 3 and 4.

The proportion of own-race choices then increased at successive CA levels for the white *Ss* and decreased for the Negro *Ss*. The over-all proportion of own-race choices was .45 for the Negro *Ss* and .61 for the white *Ss*. The difference is significant at less than the .02 level ($t = 2.42$).

The *S* was asked on Card 6 to choose the child the central figure feared. The proportion of own-race choices for the white *Ss* is at a chance level, except for CA's 3 and 7. There was a general tendency for the own-race choices of the Negro *Ss* to increase from CA 3 to 7. The difference in the incidence of own-race choices by the two racial groups is significant at between the .01 and .02 levels ($\chi^2 = 5.50$).

On Card 7 *S* was asked which child the Negro child would choose to pull him. There are no consistent developmental trends in the responses of either racial group. In general, the Negro *Ss* made more frequent own-race choices than did the white *Ss* ($\chi^2 = 6.29$, $.02 < p < .01$).

Discussion

The results of this study indicate that the ability to discriminate the physical differences between Negroes and whites develops rapidly during the preschool years. The 3-year-old *Ss* had difficulty in making discriminations of the types required, but by the seventh year the *Ss* were capable of making such discriminations with ease. These results corroborate those of previous studies and provide further evidence for the early development of racial awareness.

After the third year, where the responses of both racial groups tended to be made on a chance basis, the frequency of discrimination was rather consistently greater by the white children. This finding is difficult to interpret. The white and Negro *Ss* represented different socioeconomic groups, and, although the relevance of socioeconomic background in making such discriminations is not clear, it is possible that factors which vary with socioeconomic status, such as intelligence, experience with individual testing, and experience with the types of visual materials used, might provide the basis for the obtained differences. A serious problem is posed in comparative studies of this type because of the near impossibility of matching southern Negro and white children satisfactorily on socioeconomic status, and until more information is available, generalizations from such studies must be extended only to the groups from which the samples are drawn.

Another interpretation of this finding may, however, be made. Young Negro and white children may differ in the degree to which they respond to physical differences associated with race as being relevant in selecting a child as being "different." Negro children live in a predominantly white society. Dolls, books, magazines, and television more frequently depict white than Negro individuals. Negro children have frequent experiences with light-complexioned Negroes. In contrast, white children living in a

segregated community have less experience with Negroes and representations of Negroes. If it is hypothesized that young children perceive objects as being "different" to the degree that the characteristics of the objects deviate from those encountered in their everyday experience, it may be predicted that young white children would perceive the physical characteristics of Negroes as being relevant for selecting an individual as being different more frequently than young Negro children would perceive the characteristics of whites as being relevant. The validity of this hypothesis may be tested in further studies employing different types of test materials and subjects who differ in their frequency of contact with members of the other race.

The items related to attitudes towards self and towards race revealed a higher frequency of negative attitudes among the Negro *Ss*. A greater frequency of own-race rejection on the part of the Negro *Ss* compared to the white *Ss* is seen in the lower proportion of Negro *Ss* making own-race choices in selecting playmates, companions to go home with, and guests for a birthday party, and in selecting own-race dolls as looking more like themselves. The Negro *Ss* placed the Negro children in negative positions in the Incomplete Stories more frequently than the white *Ss* placed white children in such positions. The Negro *Ss* chose Negroes more frequently as being an aggressor (Cards 1 and 6), as being less likely to give aid (Card 1), as losing in a tug of war (Card 3), and as being a badman (Card 3). The surprising thing about these results is that they were obtained with *Ss* so young; by the ages of 4, 5, and 6 these *Ss* were responding in a manner which indicated not only awareness of racial differences, but also the use of stereotyped roles. A question of great interest is that of determining how children as young as these acquire such responses to race.

It is not unexpected that the study should raise many questions which cannot be answered with presently available data. It is clear from the results, however, that in order to understand how racial attitudes develop a great deal more information about the responses of young children will have to be obtained.

Summary

A series of tests involving discrimination of physical differences between Negroes and whites and attitudes toward race were presented to 125 white and 100 Negro *Ss* between the ages of 3 and 7 years. A rapid increase in the ability to discriminate between the races was found in both racial groups between these ages. The white *Ss* tended to develop such discriminations at a younger age than did the Negro *Ss*. The Negro *Ss* made a lower frequency of own-race choices than did white *Ss* in items involving the selection of a child as a playmate, as looking most like *S*, etc. The Negro *Ss* assigned negative roles to Negro children more frequently than the white *Ss* assigned such roles to white children.

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A COMPARISON OF DISCRIMINATION LEARNING IN NORMAL AND MENTALLY DEFECTIVE CHILDREN[1]

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Is the IQ related to learning ability in children of the same mental age? An answer to this question has been suggested by the results of previous studies. These led to the prediction that normal children would outlearn mentally defective children of the same mental age. Imbeciles with MAs of about three years learned visual discriminations poorly (5), as compared with naive monkeys (3). Since normal three-year-olds have not been found inferior to monkeys in such learning (4), the inference was made that normal three-year-olds would outlearn defectives matched with them for MA.

In another study of mentally deficient children, IQ was found to be correlated with error scores on a visual discrimination problem, after variation in MA had been eliminated by partial correlation. The range of IQs in this population of defectives was 17 to 67. Extrapolation of the correlational relationship to higher IQs also yields the prediction of superior learning in normals of matched MA.

To check the validity of these inferences, the present study offers a more direct comparison of the visual discrimination learning of normals and defectives.

METHOD

Subjects

For the normal subject population, pupils at the University of Connecticut nursery school were used. Most of these were children of the University faculty and staff. All the children in the school participated except three

[1] This research was carried out at the Mansfield State Training School, Mansfield Depot, Connecticut. The authors wish to express appreciation to Dr. Neil A. Dayton, Superintendent, and to Dr. John Cassell and Mr. Louis F. Boly, principal and assistant principal of the Longley School, for their aid and cooperation. This investigation was supported by Research Grant M-1099 from the National Institute of Mental Health, Public Health Service. Miss Alice Fielding assisted in collection of data.

whose MAs fell outside the range of 4-0 to 6-2 selected for the comparison. The final *N* was 30. Intelligence testing was done with the Stanford-Binet (Form L, 1937 Revision).

The sample of mentally defective children came from those attending classes at the Longley School of the Mansfield State Training School. Intelligence test scores for these subjects were provided by the Psychology Department of the Mansfield State Training School under the direction of Miss Laura Gothberg. The Stanford-Binet (1916 Revision) was used. For an earlier study (6), all available defective subjects with MAs between 2½ and 6 had been trained on the discrimination problem described below with the exception of a few who failed to cooperate. From that group, 32 who had MAs within the range of those of the nursery school population were selected for comparison.

TABLE 1

CHARACTERISTICS OF SUBJECT SAMPLES

		CA (months)			IQ			MA (months)		
	N	*Mean*	*SD*	*Range*	*Mean*	*SD*	*Range*	*Mean*	*SD*	*Range*
Normal MA year IV ...	10	48.5	3.6	43– 56	111.4	8.8	96–124	53.7	2.4	49–57
Defectives MA year IV ...	17	148.0	45.3	88–228	40.4	10.0	27– 59	52.4	3.1	48–58
Normal MA year V	20	54.6	3.5	50– 60	125.4	9.0	112–146	67.8	3.5	60–74
Defectives MA year V	15	136.5	33.7	99–237	51.0	7.8	36– 67	65.5	4.0	60–73

Table 1 shows the characteristics of the normal and mentally defective groups to be compared. Both samples included boys and girls. A description of those defective subjects with MAs 2½ to 4 for whom normal controls were not available is given in a previous paper (6).

Apparatus

The apparatus was modeled after the Wisconsin General Test Apparatus (2). It consisted of a table with a sliding stimulus tray 30 in. by 12 in. with two circular food wells 2 in. in diameter centered 12 in. apart. In the center of the table, separating *S* from *E*, was a one-way screen. The sliding tray, when pulled behind the screen, was invisible to *S*. For a trial, the tray was pushed directly in front of *S*.

The stimuli consisted of painted forms cut out from ¼ in. Masonite and mounted vertically on 4 in. by 4 in. gray Masonite bases. Five forms were used, circle, square, triangle, cross and T, each having maximum height and width of two inches. Each form was repeated in five colors,

red, green, yellow, white and black, making 25 stimuli in all. Each subject was assigned two stimuli selected at random from among these 25, with the restriction that the two stimuli should differ in both color and form (for example, a red cross and white circle). Correct and incorrect stimuli were designated randomly.

Procedure

Pretraining. On the first presentation of the stimulus tray, both food cups were left uncovered with candy placed in one of them. The experimenter asked, "Can you find the candy?" and pointed if the subject failed to pick it up. On the next trial, a gray wedge was placed over one of the food cups containing candy, with the other cup left uncovered. Again, *S* was asked to find the candy and aided by the experimenter if he failed. When the subject picked up the gray wedge without prompting (usually one or two trials), discrimination trials were begun.

Discrimination trials. For a discrimination trial, *E* pushed forward the stimulus tray with two stimuli covering the two food cups so that it was directly in front of *S*. The two stimuli were the same on every trial for a given subject with one and only one always correct. The position of the correct stimulus was varied irregularly from left to right according to a Gellerman's (1) series. *E* recorded *S*'s first response as correct or incorrect. Twenty-five trials with about 15 sec. intertrial interval were given per day until a criterion of 20 out of 25 correct was reached during a single daily session. Some of the subjects were run under correction and others under noncorrection procedure. No difference was found in performance between these two procedures.

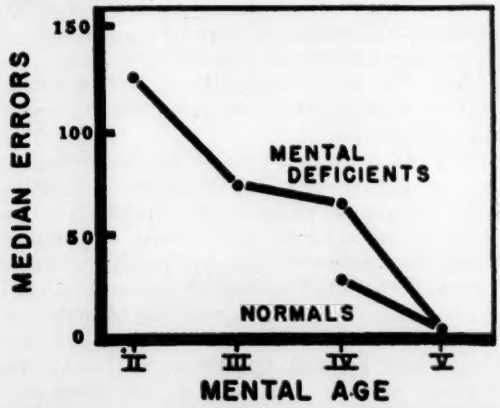

FIGURE 1. Median errors on the discrimination problem as a function of MA in years for mentally deficient and normal subjects. The roman numerals give the lower limits of the MA intervals.

Results

As mental age increases, errors in visual discrimination decrease for both normals and defectives. Figure 1 clearly shows this. Between MA levels IV and V, the drop in errors for the defectives achieves statistical significance at the .01 level, and for the normals at the .06 level.[2] The nonparametric Mann-Whitney U-test (7) was used in view of the skewed distribution of error scores.

At MA level IV, the normals outlearn the defectives, a difference significant at the .05 level, while at MA V the groups do not differ. One-tailed tests of significance were used throughout because all differences were in the expected direction.

Discussion

The previously inferred relationship of IQ to learning ability is supported by the superior learning ability of the normals at MA level IV. The absence of a difference at MA level V is the result of a performance limit of the task rather than equality of learning ability. Most defectives of MA V learned the discrimination in the absolute minimum of one trial. A more difficult visual discrimination would be necessary to show the expected difference at this level.

There are of course many differences between the normals and defectives other than IQ. One group is institutionalized, the other offspring of professional parents. The normals are undoubtedly healthier, happier and have richer home environments, to specify a few differences. Such differences, however, may not be sufficiently independent of IQ to allow them to be controlled and yet leave the required variation in IQ. And more importantly, it is not established that such differences are relevant variables for learning ability when IQ is controlled. The operating assumption underlying this study maintains that IQ is the major, relevant, controllable difference between the groups.

The matching of the two groups in MA may be challenged. Different revisions, 1916 and 1937, of the Stanford-Binet were used. Although there are no published comparisons of the two tests specifically for populations of mental defectives, the standardizers have shown the two tests to be as highly correlated, in a sample from the general population, as the respective reliabilities would allow (9). The standard deviations of the two tests are such however to suggest that if both groups had taken the 1916 revision the obtained difference would have increased, while if both had the 1937 revision, it would have decreased. Again, it is well to make clear another assumption, namely, that the difference in revisions is not great enough

[2] The over-all decrease in errors of the defective group from MA II to MA V has been found to be significant at better than the .001 level (6).

to produce a median difference of seven months in MA, that being the difference in MA necessary to produce overlap of the normal and defective functions shown in Figure 1. The matching is properly considered rough.

The findings of the present study are consistent with the proposition that defectives learn more slowly than normals of matched MA. Furthermore, these results form a fairly convincing picture when taken in conjunction with outside evidence. There are, for example, not only the experiments mentioned in the introduction whose results led by inference to a prediction of the outcome of this study, but also another experiment by Stevenson and Iscoe (8) with consonant findings. These authors report a difference in visual discrimination between normals and defectives matched for MA at the year VII level, with normals surpassing defectives in speed of learning. Finally, and in an anecdotal vein, there are the frequent reports of teachers of the mentally retarded who have long suspected that MA scores of intelligence tests were overestimating the learning ability of their students.

Summary

As a check on the validity of the hypothesis, derived from previous research, that IQ is related to learning ability with MA controlled, the visual discrimination learning of 30 nursery school children of MAs IV and V was compared with that of 32 mentally defective children of approximately the same MA. The data were consistent with the hypothesis. At MA IV, the normals, with their higher IQ's, learned to discriminate significantly faster than the defectives.

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FACTORS RELATING TO THE ACCURACY OF ADULT LEADERS' JUDGMENTS OF SOCIAL ACCEPTANCE IN COMMUNITY YOUTH GROUPS

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Since 1950, investigators have sought reasons for the extreme variation found among school teachers in their ability to predict social acceptance within their classroom groups (1, 3, 4, 5, 6, 7). It still can only be hypothesized that factors affecting this variation in accuracy will be of three general types: (a) characteristics of individual children, (b) characteristics of groups of children, and (c) characteristics of the adult judges. This study investigated the relationship of factors of these three types to the accuracy of adult judgments of children's social acceptance. The judgments of social acceptance were made by volunteer adult leaders for members of community youth groups.

Predictions of children's social acceptance are judgments about real life events: children's demonstrated preferences of friends or companions in a particular group. Calvin (2) has attempted to shape hypotheses about the judgment process that can be tested experimentally and lead to development of theory in this area. As he points out, judgments utilize signs that indicate with varying degrees of likelihood the presence of whatever is being judged. Calvin suggests that the judge must manipulate and combine many cues to arrive at a judgment. Possibly only a few of the many cues available or used by the judge will affect the accuracy of the judgment.

The effect of only one of the many characteristics of children that might furnish cues for judgments of social acceptance has been investigated. Teachers' judgments have been reported (4, 5) to be less accurate for the six children they most and least prefer than for the class as a whole. In Calvin's wording, the teachers used their preferences as cues in the judgment process, but their preferences were not relevant to peer social acceptance of the children. The present study investigated the hypothesis that two other characteristics of the judged children, sociometric status and deviation in age from the median age of the club, relate to the accuracy of adult judgments of club members' social acceptance.

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Characteristics of school classes have not affected the accuracy of teacher judgments of social acceptance in reported investigations (1, 3, 4, 7). This study tested the hypothesis that accuracy of leaders' judgments of youth club members' social acceptance is not affected by characteristics of the club. The three characteristics studied were size of club, median age of club members, and number of meetings held prior to the time of judgment.

Scores of adults on some measures of personality characteristics have been related to their ability to judge children's social acceptance (4, 5, 7, 11). However, Gronlund (4) has reported that differences in experience of teachers are not associated with accuracy in judging pupil's social acceptance. This investigation tested the generalization to another population of judges (4-H Club leaders) of Gronlund's negative findings for teachers with reference to two experience factors, years of experience as a 4-H Club leader and years of experience leading other community groups, and to one personality characteristic, sociometric status in an adult peer group. Additionally, this study tested the hypothesis that differences in four uninvestigated aspects of adult experience do not affect the accuracy of leaders' judgments of the social acceptance of youth club members. The four aspects of experience were membership in a 4-H Club in own youth, years of residence in the community, degree of outside club acquaintance with members, and status as a parent in regard to number, sex, and school grade level of children.

Method

The adult judges of this investigation were the 36 women volunteer leaders of 22 Home Economics 4-H Clubs in one Illinois county who attended the club meeting when members were given the sociometric test. The leader judges included 77 per cent of the 47 adult women leaders in the county and leaders from all but one home economics club in the county. Data for the omitted club of seven members were collected, but the leader misunderstoood directions and named friends of members who did not belong to the club. The number of leaders judging social acceptance within each club varied as follows: for 11 clubs, one leader made judgments; for eight clubs, two leaders served as judges; for three clubs, three leaders served as judges.

The leaders judged the social acceptance of 263 girl members of the home economics clubs. The leaders' judgments were compared in this investigation with the club members' sociometric test score and choices of three best friends. The club members and the sociometric test procedures have been described in a report (10) concerned with members' sociometric choices. Members completed a sociometric test requesting three choices of companions from the club membership for each of three situations. Age of members was obtained from birthdates reported in 4-H Club official records.

The leaders answered a questionnaire form at the club meeting when members took the sociometric test. They were asked to name each club member's three best friends in the club. They indicated how frequently they saw each member at community gatherings other than club meetings according to these categories: four or five times a year or less, probably once a month, and more than twice a month. Their answers to check-list type questions furnished the information used in this report concerning years served as a 4-H Club leader, years of experience with other community youth groups (including Sunday school), experience as a 4-H Club member in their youth, length of residence in the community, number and school grade level of sons and daughters, and the number of meetings held by the club in the current year. Sociometric status in adult women's extension clubs (9) was obtained for 12 leaders within the two months preceding the 4-H Club tests.

Accuracy of each leader's judgment of the three best friends of each club member was determined by computing how well it agreed with the member's actual choices (unordered). Both number and percentage of agreement are used as accuracy measures in analyses of this report. A chi square test, described elsewhere (12), was used to test whether the number of agreements was beyond the .05 level of probability for the number of judgments made by each leader. The number of agreements exceeded the .05 level for 16 leaders, described as *beyond chance leaders* in this report. The number of agreements was no more than that possible at larger levels of probability for 13 leaders, described as *chance leaders*. Probability level of the number of agreements could not be determined for the seven leaders of three clubs of four, five, and six members. These leaders and clubs were omitted from all analyses using the beyond chance or chance leader dichotomy.

Accuracy of a leader's judgment of members' popularity in the club was measured by the product-moment correlation of the leader's judgment of popularity scores with sociometric scores of members in the particular club. The leader judgment of popularity score for each member was the sum of the weighted leader choices of the member as one of three best friends of other club members. Each time the leader named the member as another girl's first choice for best friend, three points were contributed to the leader judgment of popularity score for that member. The leader's selection of the member as a second best friend contributed two points. Selection as a third best friend contributed one point to the score.

Results

Analyses of the number of agreements between leaders' selections and members' choices of three best friends supported the hypothesis that two child characteristics, sociometric status and deviation in age from the median age of the club, relate to the accuracy of adult judgments of youth club

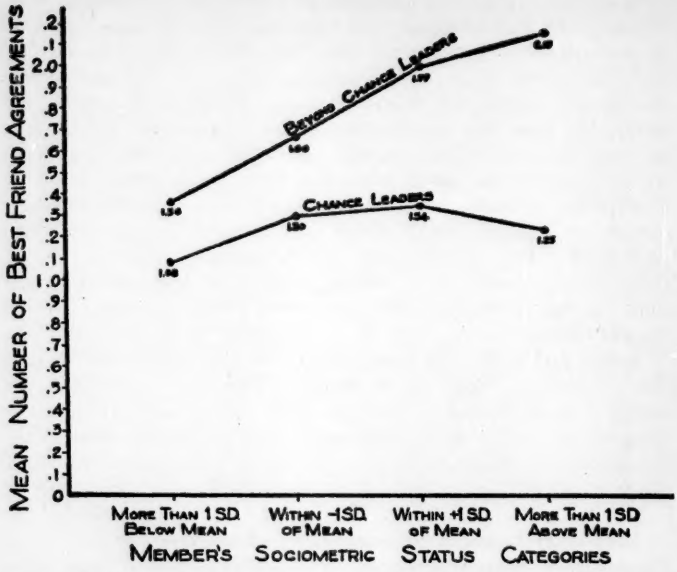

FIGURE 1—Relations between sociometric status of club members and the number of agreements obtained between club leaders' selections and the members' choice of three best friends.

members' social acceptance. The increase in mean number of agreements as the sociometric status of the member improved is shown in Figure 1 and the similar increase as the relative age position of the member improved is shown in Figure 2. Differences in mean number of agreements were significant at the .005 level for sociometric score categories and at the .05 level for age deviation categories in the two Lindquist Type 1 analyses of variance (8) used to test these and other differences. All sociometric score or age deviation categories separated from each other by one or more categories differed significantly by t tests, while neighboring category differences were not significant. As described elsewhere (10), the mean sociometric score of all club members was 19 points and the standard deviation, used to establish categories, was 11.2. Approximately equal numbers of members were found in the three categories for age deviation from the median age of the club listed in Figure 2.

The greater influence of members' position on the accuracy of judgments made by beyond chance leaders than those made by chance leaders, indicated in Figures 1 and 2, gave additional support to the child characteristics hypothesis. Differences in number of agreements for the two groups of

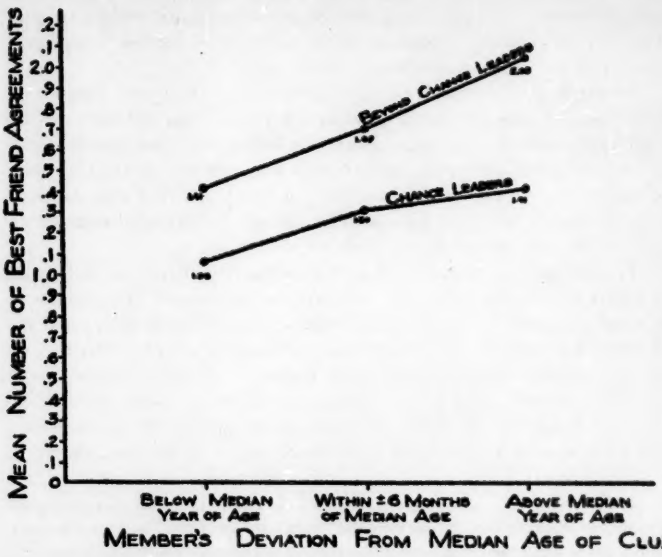
Mean Number of Best Friend Agreements
Beyond Chance Leaders
Chance Leaders
Below Median Year of Age
Within ±6 Months of Median Age
Above Median Year of Age
Member's Deviation From Median Age of Club

FIGURE 2—Relations between club member's deviation in age from the median age of the club and the number of agreements obtained between club leaders' selections and the members' choice of three best friends.

leaders were significant at the .005 and .001 levels in the sociometric status and age deviation Type 1 analyses of variance respectively. In simpler treatments by subjects analysis of variance tests for each group of leaders, differences between sociometric score and age deviation categories were significant for beyond chance leaders but were not significant for chance leaders. By additional tests of interaction and mean differences, beyond chance leaders improved accuracy of judgments more as the members' relative age position improved than did the chance leaders. The test of interaction between leader group and sociometric status category was not significant.

The hypothesis that accuracy of leaders' judgments of youth club members' social acceptance is not affected by characteristics of the club was rejected by the data of this investigation. Accuracy of the club leaders' judgments decreased as the size of the club increased from four to 27 members. The product-moment correlation between number of club members and percentage agreement accuracy of leader judgments was —.64, a large and significant coefficient. Percentage agreement of leader's selections with members' choices of three best friends ranged from 25 to 85 per cent.

Size of club also correlated negatively and significantly (−.53) with the accuracy measure for adult judgment of popularity status within the club. The range of correlations between leader judgment of member's popularity scores and sociometric scores was −.16 to +.96.

Findings for the other two club characteristics, however, support the club characteristics hypothesis. Median age of the club did not correlate significantly with the accuracy measures for leader judgments of best friends ($r = .26$) and of popularity status within the club ($r = .21$). The range of median age for the 22 clubs was 11-6 to 15-2 years. By t test, the mean number of club meetings did not differ for the 16 beyond chance leaders ($M = 7.25$) and the 13 chance leaders ($M = 7.30$).

The data of this investigation supported the hypothesis that differences in experience of club leaders do not affect the accuracy of their judgments of social acceptance of youth club members. The null hypothesis could not be rejected in any t tests of differences or chi square tests of independence for beyond chance and chance leader judges in the following six adult experience factors: years of experience as a 4-H Club leader, years of experience as a leader of other community youth groups, membership in a 4-H Club in own youth, years of residence in the community, degree of outside club acquaintance with members, and status as a parent in regard to number, sex, and school grade level of children. Neither was the adult personality charcteristic of sociometric status in an adult peer group associated with accuracy of adult judgments of children's social acceptance.

Discussion

Two child characteristics, sociometric status and deviation in age from the median age of the club, were shown to be associated with differences in accuracy of adult judgments, or to provide cues related to this accuracy. These findings indicate that adults differ in the cues they use to judge children's social acceptance, a difference that Calvin (2) has hypothesized will be demonstrable for the process of learning to judge.

Accuracy of these leaders' judgments depended on one group characteristic, size of the club. Studies of school classes (3, 4, 7) have not revealed significant relations between size of class and accuracy of teacher judgments of social acceptance, although all report the direction of relationship to be negative, as was found in this study. School classes studied have ranged in size from 17 to 43 pupils. It is possible that this relationship is more marked for the more disparate and smaller group sizes of this investigation. It is possible, also, that accuracy of leaders' judgments, necessarily based on fewer hours of observation than is possible for teachers, is affected more by the size of the group than is the accuracy of teachers' judgments. The nonsignificant but positive r's found between median age of the group and judgment accuracy are in line with findings of studies of teacher judgments (1, 7).

Experience factors did not affect the accuracy of judgments of these community group leaders. This finding corroborates with a different population the findings of investigations using school teacher judges. The conclusion appears warranted, then, that experience factors of the sociological type used in these studies do not indicate how accurately an adult will judge children's social acceptance.

Summary

This study investigated factors affecting the variation in accuracy of adult judgments of children's social acceptance. Adult judges were 36 women serving as volunteer leaders of 22 Home Economics 4-H Clubs with 263 girl members. Accuracy of judgments was measured by number or percentage of agreement of the leader's selections with club members' choices of three best friends and by the product-moment correlation for each club member of the leader judgment of member's popularity scores with the members' sociometric scores.

Two characteristics of the judged children affected the accuracy of these club leaders' judgments of social acceptance. Accuracy of judgments increased as the members' popularity status improved and as the members' relative age position shifted from below to above the median age of the club. The more accurate leader judges showed a greater increase in accuracy of judgment as the members' sociometric status and relative age position improved than did the less accurate judges.

Accuracy of the leaders' judgments decreased as the size of the club increased from four to 27 members. No association with accuracy of judgments was found for two other group characteristics: median age of the club and number of club meetings held prior to the time of judgment.

Differences in experience of these club leaders did not affect the accuracy of their judgments of the social acceptance of club members. Additionally, sociometric status of the leader in an adult peer group was not associated with accuracy of judgment.

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A CHILD STUDY LABORATORY ON WHEELS[1,2]

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A laboratory on wheels has been demonstrated to be a practical way of conducting experimental studies with children. Since it can be hauled anywhere, normal and deviant children of all ages are accessible for observation. Compared with the other ways of obtaining subjects (for example, having parents bring their children to a clinic, establishing and maintaining laboratory schools, or going to a school or institution and seeing children under make-shift conditions), observing children at the "sources of supply" in a trailer is a relatively simple, inexpensive, and flexible method. Furthermore, a unit of this type has the advantages of a laboratory in a building, i.e., observations may be made under relatively constant conditions, and apparatus for controlling conditions and recording responses may be used with convenience.

During the past four years most of the experimental studies on children at the University of Washington has been done in a laboratory-trailer. This paper describes its uses.

Figure 1 is a photograph of the laboratory parked beside a private day care center in Seattle. The masonite structure is 19 feet long by 8 feet wide by 7 feet high and it rides 14 inches above the ground. Figure 2 is the floor plan of the interior. It is the same as the laboratory in the Institute of Child Development (1). The layout consists of a large "playroom" and a small observation room with a one-way mirror. Permanent equipment in addition to the viewing mirror consists of a microphone and speaker, a heater-fan, four lights, and two juvenile tables (one built over each wheel), and chairs. The other things in the diagram are for the study in progress dealing with

[1] The development of the methods and procedures for the laboratory-trailer was supported by a grant from the National Science Foundation (G-2141).

[2] I wish to express my gratitude to Robert Sharply for his assistance in this work.

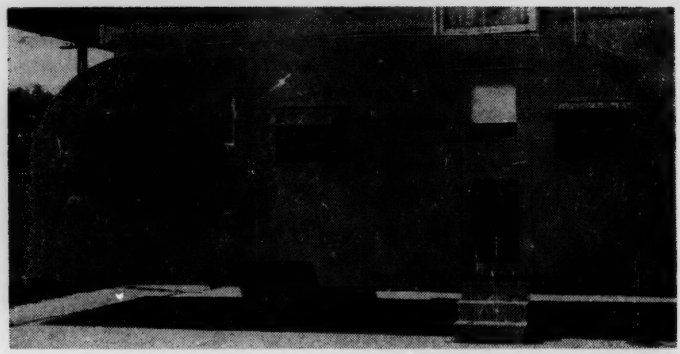

FIGURE 1—The mobile child study laboratory in operation at a private day care center.

the development of operant discrimination. They include an adult-sized chair with a right-sided writing arm, an opaque screen, a standard toy on one table, and two pieces of apparatus on the other. The one on the left contains a lever and two jewel lights; the one on the right is a device for presenting stimuli on cards. The room has a playroom atmosphere created by the beige walls, multicolored matching wallpaper on the screen, frosty lights, yellow window valences, natural colored grass rug, and augmented by the children's furniture and the bright colors of the toy and apparatus. On the table in the observation room are a control panel and two cumulative recorders. A universal dispenser and chute are attached to the partition.

The following is a typical sequence of events in the operation of the trailer:

1. After plans for a study have been completed, the trailer is brought from the last place of operation to the campus for installation of equipment and repainting. Movement is by truck from the Buildings and Grounds Department of the University.

2. Arrangements are made to locate the trailer where the study is to be performed.

3. The trailer is moved to its new location and situated close enough to a building to attach an extension cord. While one person is preparing the laboratory for operation (suspending it on jacks, checking out equipment, and the like), the other member of the team, usually a young woman, is becoming acquainted with the personnel and children. This part of the procedure takes one or two days depending upon the group.

4. To keep all the youngsters happy, the children in the class or school (if small, like a typical nursery school) who have not participated in the study are given a "turn" to play and to receive some of the reinforcers.

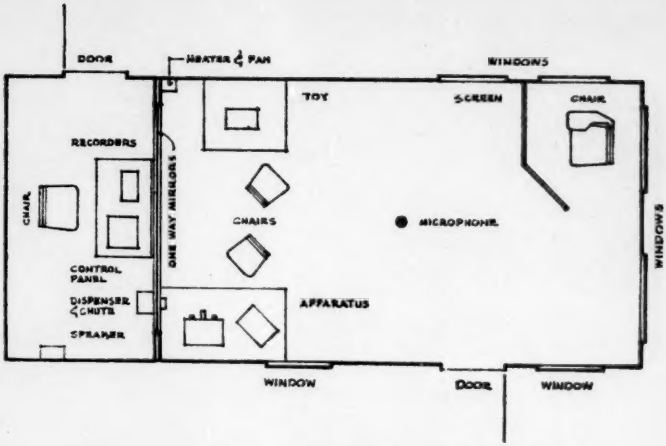

FIGURE 2—Floor plan of the mobile child study laboratory.

To date the laboratory has been used as an adjunct to a private day care center, a public school for exceptional children, the University student housing village, and a remedial reading clinic. Reactions of the children (especially the younger ones) have been enthusiastic. Comments from teachers and administrators have been to the effect that research conducted in the trailer fits in well with school routines and that the activity is enjoyed by the children.

Variations on the trailer described readily come to mind. For example, a longer trailer, one which would house two "playrooms" with a common observation booth between, might be more efficient in some situations. Or more elaborate permanent equipment (tape recorders, motion picture cameras, photographic cells, etc.) might be installed to obtain continuous records of activity level, activity changes, and verbalizations. Or the interior might be altered to meet specifications of an age group such as infants or adolescents, or for analysis of social behavior under free or restricted conditions. A vehicle of this sort can be tailored to almost any research problem.

The trailer was obtained by the Surplus Properties Department of the University and was renovated by the Buildings and Grounds Department for about $900.00. Maintenance expenses consist of fees for license plates, charges for hauling, and periodic repainting.

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THE DEVELOPMENT OF SOCIAL COMPLIANCE IN YOUNG CHILDREN[1]

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Social conformity as an aspect of mental health has increasingly concerned social scientists, professional workers in the field of mental health, and laymen alike. In the last few years, observers of the American scene have noted a number of trends toward such conformity; and many of these observers have predicted dire consequences of these trends, both for individual mental health and for our general cultural progress. The determinants and processes entering into social conformity or nonconformity are obviously involved and complex. Only recently have some of the more simple relationships been understood. From a sociological point of view, a number of writers and researchers are gradually establishing a more concise picture of certain trends toward social conformity in this country, and have elucidated several factors producing some of these changes. However, much less is known about the effects of these trends on individuals who experience them.

Certain aspects of social conformity are obviously necessary for the maintenance of society. Mature members of any society are required to comply with many social demands, prohibitions, and regulations. Effective social participation, however, also demands autonomous action as well as social compliance. Socially-contributive individuals must be able to make decisions on their own, to engage in self-initiated activities, and to withstand social pressures when these run counter to personal values. Thus, extremes of conformity or nonconformity may not only limit an individual's social effectiveness but also be deleterious to his personal integration and mental health.

[1] This article is a condensed version of a paper presented by the senior author at the Fourth Annual Conference on Social Psychology and Mental Health, Vanderbilt University, April, 1958.

CHILD DEVELOPMENT, Vol. 29, No. 3, (September, 1958)

One aspect of social conformity has received little attention from psychological researchers to date, namely, the question of how social conformity or nonconformity develops in children, and the role of parents in this development. The present study was concerned with this general question.

METHOD

The sample of the study was comprised of 59 children from three through eight years of age. The children were members of the Fels Research Institute's longitudinal research population, and resided in homes within a 30-mile radius of the Fels Institute in southwestern Ohio. Almost all of the families of the children were middle class, and the parents were better educated and tested higher on intelligence tests than national averages.

The children were studied in two separate groups. A younger group was comprised of 30 children, three, four and five years of age. This group attended the Fels Experimental Nursery School during the regular school year, and will be referred to as the Nursery School children for the remainder of this discussion. A second group of children, composed of 29 six-, seven-, and eight-year-olds, attended the Fels Day Camp in early summer after their regular schools had closed. This group of older children will be designated the Day Camp children.

During the Nursery School and Day Camp sessions, the children's interactions with peers and with teachers were observed. Two full-time observers made daily time-sample observations of each child. From these observations, each observer independently rated the children in respect to a number of social behavior variables. Rating scales were specially constructed for these ratings. Their format was patterned after the Fels Parent Behavior Rating Scales, described in detail elsewhere (1, 2, 3). Each rating scale consisted of a verbal definition of the variable to be rated, and descriptive cue-points along a 90-millimeter line so that graphic subject-to-subject comparisons could be made. The central variable investigated in the study was face-to-face compliance. The rating scale for this variable was entitled "Compliance with Commands and Suggestions for Others," and was concerned with the frequency and alacrity with which the children acceded to the demands and suggestions of other persons. Other social behavior variables which were rated were: (a) "Amount of Help-seeking," (b) "Amount of Emotional Support-seeking," (c) "Amount of Approval-seeking," (d) "Amount of Hostile-aggressive Behavior," (e) "Amount of Attempts to Direct and Influence Others," (f) "Amount of Independent Achievement Efforts," and (g) "Readiness to Withdraw from Threatening Situations." With the exception of the last two variables, separate ratings were made of behaviors exhibited in peer interactions and of behaviors employed in interactions with adults.

Subsequent to the observations and ratings, the two observers, using pooled judgments, also made a 75-item Q-sort of each child's characteristic

social behavior. For each child, the two observers jointly sorted Q-sort items into seven categories running from those behaviors which were highly characteristic of the child to those behaviors which were not. A forced-normal distribution was employed in this sorting.[2]

Each child's social behavior was thus assessed normatively and ipsatively. The rating scales provided *normative* comparisons of each child's social behavior with that of the other children in his group; the Q-sort of each child provided *ipsative* information regarding the characteristic social behaviors of that child *per se*. This latter evaluation was not contingent on the child's relative standing in comparison to other children.

Previous to the children's participation in the Fels Nursery School or Day Camp, these children were also observed as they interacted with their mothers in their homes. These observations were made as part of the routine Fels Home Visit Program. The Fels Home Visitor, an experienced clinical psychologist, observed mother-child interactions, and subsequently rated the children's compliance toward their mothers using the same scale employed by the Nursery School and Day Camp observers to rate the children's behavior toward adults at Fels. Finally, the Home Visitor also rated the mothers' behavior for: (a) the degree that each mother rewarded her child's compliance, and (b) the amount of punishment which the mother employed for noncompliance. These latter ratings were made with rating scales whose format was similar to the rating scales previously discussed.

The data obtained from the various ratings and Q-sorts provided information relevant to the following questions: (a) What personality attributes are associated with social compliance and noncompliance in young children? (b) Do these personality correlates change with age? (c) How consistent is young children's social compliance across people and social situations? (d) To what degree are maternal reactions to children's social complance predictive of the children's social compliance outside the home? (e) Finally, what implications do the over-all findings of the study have with respect to social conformity and mental health in young children?

Results and Discussion

Degree of social compliance was not a function of either sex or intelligence in the children studied. In neither the Nursery School children nor the Day Camp children were the girls more compliant than the boys, nor were the compliant children at either age more or less intelligent than the less compliant children.[3]

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[2] Mimeographed copies of the rating scales and Q-sort items may be obtained from the authors.

[3] Nonparametric statistics were employed for all data analyses. Unless otherwise specified, the rank-difference correlation was used as the measure of association, and the Mann-Whitney U Test was employed to test differences between groups.

In the Nursery School children peer-compliance was correlated .51 with adult-compliance, significant at the .01 level of confidence. The magnitude of this correlation suggests that a number of these children who were compliant or noncompliant with peers behaved similarly with adults. However, since the relationship was far from a perfect one, it is also evident that others of these children who were compliant with peers were not so with adults, and *vice versa*. In the light of this finding, the age of the persons with whom the children did or did not comply cannot be ignored. Table 1 presents correlations of the children's other social behaviors with their peer-compliance and with their adult-compliance. In Table 1, the column to the

TABLE 1

RELATIONSHIPS OF NURSERY SCHOOL CHILDREN'S COMPLIANCE TO OTHER SOCIAL BEHAVIORS

	Interaction with Peers		Interaction with Adults	
Variable	*Rho*	*p*	*Rho*	*p*
1. Instrumental help-seeking	.37	.05	.08	ns
2. Emotional support-seeking	*	.01	.10	ns
3. Approval-seeking	.10	ns	—.30	ns
4. Aggressive-hostile behavior	—.31	.05	—.85	.01
5. Attempts to direct & influence ..	—.23	ns	—.65	.01
6. Readiness to withdraw	.02	ns	.58	.01
7. Independent achievement efforts	—.25	ns	.33	.05

* Emotional support-seeking from peers could not be rated as a continuous variable. The observers could, however, report occurrence or nonoccurrence of this behavior. This was compared with compliance after the latter variable was dichotomized at the median. Fisher's exact test was run. High compliance was significantly associated with the occurrence of emotional support-seeking.

immediate right of the social behavior variables contains correlations of these variables with compliance when the children were interacting with other children; the far right column contains parallel data when the children were interacting with adults in the nursery school.[4]

Variables 1, 2, and 3 in Table 1 are dimensions of social behavior which are generally considered to be facets of dependency. Social compliance, too, is usually assumed to be a part of, or associated with, a dependent orientation toward other people. The data provide some support for this assumption. While approval-seeking is unrelated to compliance, the compliant Nursery School children do more readily seek both instrumental help and emotional support from their peers than do the less-compliant children.

[4] Interrater reliability coefficients for the Nursery School children's ratings were .69 for peer-compliance and .85 for adult-compliance. The median interrater reliability for the seven other social behavior variables was .70 for the peer-interaction ratings and .73 for the ratings of the children's interactions with adults.

Variables 4 and 5, dealing with aggressive and dominating social behaviors, are negatively associated with compliance. However, in neither case is the magnitude of the relationship extremely large. Finally, peer-compliance in nursery school is essentially unrelated to withdrawal tendencies and to independent achievement efforts.

The second column of Table 1 contains correlations representing the Nursery School children's behavior with *adults*, and presents a very different picture from that found in peer interactions. First, the children's compliance toward adults is not related to the amount of dependent overtures the children make toward these adults. Why should the children's compliance be related to amount of dependent behavior with peers but not adults? One possible explanation, admittedly *post hoc*, is that the amount of dependent behaviors exhibited by these children is influenced by the general social context in which they occur. The Fels Institute Nursery School teachers attempt to be unobtrusive, and to leave the children on their own as much as possible. Compliant children with high dependency needs, in this context, might come to expect that dependent overtures would not be readily gratified by these teachers, and might therefore not attempt as many overtures as they would if the teachers were more available.

Second, as seen in the correlations of compliance with variables 4 and 5 in Table 1, strong inverse relationships exist between compliance and hostility and between compliance and dominance when the children are interacting with adults in the nursery school. The Nursery School children who readily comply to adult commands and suggestions frequently do not, or cannot, express much aggression toward these adults. Nor do they usually attempt to get these adults to comply with their own wishes. Conversely, the less-compliant children more readily express aggression toward the nursery school teachers, and more frequently attempt to dominate or influence them. These correlations suggest that, at nursery school age, children's compliance toward adults is a more integral part of a general dominance-submission picture than is their compliance toward peers.

Finally, the Nursery School children's readiness to comply with adults is positively associated with their readiness to withdraw from threatening situations and with the frequency of their achievement efforts. Thus, it appears that the children who are more compliant with adults lack assertiveness, not only toward these adults, but, in general, withdraw more readily in the face of any threat or adversity. The fact that these children also engage in more independent achievement efforts is, at first glance, surprising. Being less assertive children, they might be expected to engage in fewer independent achievement efforts. It is apparent that they were not involved in achievement activities to gain approval from teachers; the correlation of compliance and approval-seeking is negative. There is one plausible alternative explanation. The Nursery School children's readiness to withdraw was correlated .48 with the amount of their achievement efforts. In respect to this, the Nursery School observers informally reported

that a number of children, when they became anxious or threatened, withdrew from social interactions of the nursery school and intensely engaged in some achievement activity by themselves. This achievement activity in alone-play following threat seemed to be a method used by these children to allay the anxiety engendered in the previous social situation. The adult-compliant children may have especially used achievement efforts in this defensive fashion.

TABLE 2

Q-SORT ITEMS OF CHARACTERISTIC SOCIAL BEHAVIORS DISCRIMINATING PEER-COMPLIANT FROM PEER-NONCOMPLIANT NURSERY SCHOOL CHILDREN

Item	*p*
1. Opinions are more readily influenced by others	.05
2. Has a higher energy level	.05
3. Is more spontaneous and uninhibited	.01
4. Is more distractible	.05
5. Is more suggestible	.05
6. More often seeks attention and praise from others	.01
7. Is warmer, friendlier	.05
8. Shows more empathic sensitivity to others' feelings	.05
9. Appears more relaxed, easy-going	.05
10. Is less rigid, inflexible	.05
11. Is less of a perfectionist	.05
12. Exhibits less self pity	.05
13. Finds it less difficult to admit mistakes	.05

The Q-sorts of the Nursery School children's behavior provide additional information regarding the personality attributes of compliant and less-compliant children at this age. Table 2 presents Q-sort items which were found to differentiate the compliant from the less-compliant Nursery School children as they interacted with their *peers*. The items are worded to describe behaviors which were more characteristic of the compliant than the less-compliant children. The numbers in parentheses following the items give statistical levels of significance at which these items discriminated. These were tested with Fisher's exact test using a two-tailed test of significance. The items in Table 2 suggest that the peer-compliant children are somewhat more "outer-directed," to use Riesman's term; they are more suggestible and readily influenced by other persons. And they seek more attention and praise from others. Surprisingly, they have higher energy levels, and are more spontaneous and less inhibited than the less compliant children. These characteristics contrast markedly to the anxious, constricted behavior frequently observed in overly-compliant adults. The Nursery School children who comply readily with their peers are also more friendly,

outgoing, and socially empathic. And they are relatively more comfortable with themselves and others; they are more relaxed, flexible and able to accept their own mistakes. At the nursery school age, then, social compliance with peers does *not* appear to be associated with personal or social inadequacy. If anything, the compliant children present a better picture of mental health than the less compliant ones.

Table 3 presents Q-sort items which were especially characteristic of the Nursery School children who complied readily with *adult* commands and suggestions. The most striking feature of these results, as compared with those of Table 2, is that none of the behaviors accompanying high adult-compliance is similar to those associated with high peer-compliance. Compliance with adults appears to have more of the attributes of social

TABLE 3

Q-SORT ITEMS OF CHARACTERISTIC SOCIAL BEHAVIORS DISCRIMINATING ADULT-COMPLIANT FROM ADULT-NONCOMPLIANT NURSERY SCHOOL CHILDREN

Item	*p*
1. Is more cooperative, eager to please	.02
2. Reacts less negatively to commands from others	.02
3. Is more often a "chronic worrier"	.05
4. Is more deferential to persons considered superior	.02
5. Is less easily irritated by minor frustrations	.02
6. Uses excuses and rationalizations less frequently	.02
7. Becomes upset and anxious more readily	.05

conformity as it is usually pictured. There is an eagerness to please others, a ready acceptance of commands, and a deference toward superiors. The children who comply more readily with adults are also the more anxious children, the "worriers." Why should the personality characteristics of adult-compliant children contrast so markedly to those of the peer-compliant children? One clue may be found in Table 1, variables 4 and 5. It is evident that aggression and dominance are much more negatively related to adult-compliance than to peer-compliance. At nursery school age, compliance to adults appears to have a stronger quality of submissiveness than does compliance with peers. Conversely, noncompliance toward adults is associated with aggressive and dominating behaviors while this is not so in peer interactions. Compliance in peer interactions appears to transpire in a more give-and-take atmosphere. Thus, at nursery school age, peer-compliance and adult-compliance appear to be qualitatively different. Peer-compliance seems to be more a matter of cooperation, while adult-compliance contains a stronger element of submissiveness. This difference makes the differences in personality correlates of adult-compliance vs. peer-

compliance more understandable, especially the fact that peer-compliant children present a somewhat better picture of mental health than do the adult-compliant ones.

So far only the social compliance of the Nursery School children has been discussed. Similar data for the older, Day Camp children are presented in Tables 4, 5, and 6. Again, these data have been analyzed separately in respect to peer-compliance and adult-compliance. It will be remembered that the correlation of peer-compliance and adult-compliance at nursery school

TABLE 4

RELATIONSHIPS OF DAY CAMP CHILDREN'S COMPLIANCE TO OTHER SOCIAL BEHAVIORS

	Interaction with Peers		Interaction with Adults	
Variable	*Rho*	*p*	*Rho*	*p*
1. Instrumental help-seeking	—.30	ns	—.10	ns
2. Emotional support-seeking	*		.10	ns
3. Approval-seeking	—.37	.05	—.30	ns
4. Aggressive-hostile behavior	—.81	.01	—.85	.01
5. Attempts to direct & influence ..	—.71	.01	—.65	.01
6. Readiness to withdraw	.31	ns	.14	ns
7. Independent achievement efforts	—.13	ns	.00	ns

* Instances of emotional support-seeking from peers were so infrequent that this variable could not be rated.

age was .51. For the Day Camp children, the correlation of these behaviors was .76. These older children, then, were more consistently compliant or noncompliant regardless of the age of the persons with whom they interacted. Table 4 summarizes relationships between the Day Camp children's compliance and other aspects of their social behavior.[5] The correlations in this table, as compared to Table 1, indicate that the Day Camp children's social compliance with *peers* was associated with quite different social behaviors than those found with peer-compliance in the Nursery School children. First, for the Day Camp children, help-seeking no longer relates to high peer-compliance. Second, aggression and dominance are highly related to noncompliance in the behavior of these older children while this was not true in the Nursery School. Day Camp children who readily comply to their peers' commands and suggestions are generally nonassertive and nonaggressive in peer relationships.

[5] Interrater reliability coefficients for the Day Camp children's ratings were .62 for peer-compliance and .51 for adult-compliance. The median interrater reliability for the other social behavior variables rated was .65 for peer-interaction ratings and .67 for ratings of the children's interactions with adults.

In their interactions with *adults*, the Day Camp children behave differently from the younger children in still other ways. For the older children, compliance with adults is no longer associated with either readiness to withdraw or with independent achievement efforts. High adult-compliance is now exclusively related to low aggression and dominance toward adults. Thus, for the Day Camp children, the dimension of dominance-submission seems to be the central, exclusive one in respect to both peer-compliance and adult-compliance.

TABLE 5

Q-SORT ITEMS OF CHARACTERISTIC SOCIAL BEHAVIORS DISCRIMINATING PEER-COMPLIANT FROM PEER-NONCOMPLIANT DAY CAMP CHILDREN

Item	*p*
1. Reacts less negatively to commands from others	.01
2. Opinions are more readily influenced by others	.01
3. Is a less dominating person	.02
4. Expresses views less readily and forcefully	.05
5. Less often attempts to influence others	.05
6. Hates less to lose in a game or argument	.05
7. Takes a more passive role in most relationships	.01
8. Needs to have details "spelled out" more	.05
9. Relies more on others when making decisions	.02
10. Is less impulsive	.01
11. Dramatizes self and own experiences less	.02
12. Uses excuses and rationalizes less	.02
13. Less often projects blame	.05
14. Less frequently criticizes others	.05
15. Is made more uncomfortable by others' hostility	.05

The Q-sorts of the Day Camp children give additional information on the quality of their compliance and noncompliance. Table 5 lists Q-sort items discriminating the children who were highly compliant with their *peers* from those who were less so. Looking at Table 5, high compliance can be seen to be directly reflected in items 1 and 2; the compliant children more readily accede to commands, and their opinions are more easily influenced by others. Items 3 through 7 again indicate that the peer-compliant children are generally passive and nonassertive. Items 8 and 9 suggest that some aspects of dependency are still associated with peer-compliance at this age. Their expression, however, is less direct than the overt help-seeking and support-seeking displayed by the peer-compliant Nursery School children. Items 10 and 11 indicate that, at this older age, some constriction is associated with compliant behavior. Finally, the remaining items suggest that high peer-compliance appears in children who express aggression

toward others less readily, and are more uncomfortable with others' aggression.

Data on the personality correlates of the children who complied readily to *adults* in Day Camp are found in Table 6. When the data in this table are compared with those of the previous table, it is evident that adult-compliance is not associated with as many nonassertive behaviors as is peer-

TABLE 6

Q-SORT ITEMS OF CHARACTERISTIC SOCIAL BEHAVIORS DISCRIMINATING ADULT-COMPLIANT FROM ADULT-NONCOMPLIANT DAY CAMP CHILDREN

Item	*p*
1. Reacts less negatively to commands from others	.01
2. Is more cooperative; eager to please	.01
3. Is warmer, friendlier	.05
4. Is less prone to be dissatisfied	.01
5. Is less dominating	.02
6. Can more readily tolerate opposition to own views	.02
7. Expresses self pity less frequently	.05
8. Less often projects blame	.01
9. Less frequently criticizes those in authority	.05
10. Less frequently criticizes others in general	.02
11. Is made more uncomfortable by others' hostility	.05

compliance. In their stead, there is evidence of an active desire to please others (item 2), and a ready expression of warmth toward others (item 3). Also, neither constriction nor dependency is evident. In general, the adult-compliant children at day camp age appear somewhat healthier than the peer-compliant children. The most general factor found in both the adult-compliant and peer-compliant older children is their low aggressiveness and their uncomfortableness with others' hostility.

The data presented so far have dealt exclusively with the children's social compliance as this was exhibited in the social contexts of the Fels Nursery School and the Fels Day Camp. Presumably these behaviors should be somewhat similar to those displayed by the children in their own homes. This assumption is based on the common observation that children first learn most social behaviors in interaction with significant others in the home, especially parents, and often subsequently carry these behaviors into extra-home situations. The degree that this carry-over may or may not occur for various areas of children's social behavior is, however, an empirical question. The present study provides information on the generality-specificity of young children's compliant behaviors. It will be remembered that the children's degree of compliance with their mothers in their homes was rated by the Fels Home Visitor, while comparable ratings of

the children's compliance with adults and with peers at the Fels Institute were made by other observers. Relationships between these ratings are presented in Table 7. At Nursery School age, the children's compliance with their mothers at home correlates significantly with their compliance toward adults at the Fels Institute. Their compliance with their mothers, however, does not predict peer-compliance. By Day Camp age, however,

TABLE 7

RELATIONSHIPS OF CHILDREN'S COMPLIANCE TOWARD MOTHERS IN THE HOME AND THEIR SOCIAL COMPLIANCE AT THE FELS INSTITUTE

Group	*Persons Interacted with at Fels Institute*	*Rho*	*p*
1. Nursery School ..	Peers	.21	ns
2. Nursery School ..	Adults	.37	.05
3. Day Camp	Peers	.51	.01
4. Day Camp	Adults	.60	.01

the magnitude of the correlations have increased for both peer-compliance and adult compliance. Now the children's compliance toward their mothers in the home is significantly related to ***both*** their peer-compliance and adult-compliance at the Fels Institute. These latter correlations, when coupled with the finding reported earlier that the relationship between peer- and adult-compliance at Fels was higher for the older children, suggest that social compliance, as a generalized and consistent way of interacting with others, emerges relatively late in young children's social development. Social compliance or noncompliance apparently develops during the preschool age, but only emerges as a consistent personality characteristic when children have entered the larger social world of grade school, teachers, and peers.

These findings logically lead to the general question of how social compliance or noncompliance develops. What produces the increased consistency of the children's social compliance or noncompliance across situations and people as children get older? Obviously compliance, like other social behaviors, must be a product of children's social learning experiences. Significant others, especially parents, presumably affect this development through the process of indentification and/or by direct rewards and punishments. The present study provides data relevant to this question, but unfortunately, included neither fathers nor siblings as significant others. Nor does the study provide information on the development of compliance as a function of identification. These problems await additional future research. However, data were obtained regarding the mothers as social reinforcers of their children's compliance. Before turning to the last table summarizing these data, one additional question should be asked: To

what degree did the mothers who rewarded their children's compliance also punish noncompliance? The correlation between these two variables for the mothers of the Nursery School children was .05, obviously nonsignificant. Mothers of these young children who readily rewarded compliance were no more or less prone to punish noncompliance than were mothers who seldom reacted positively to their children's compliance. Mothers of the Day Camp children, however, behaved quite differently. For these mothers, rewarding compliance and punishing noncompliance correlated .57, significant at the .01 level of confidence. Thus, the mothers of these older children who rewarded compliance tended to punish noncompliance, while the mothers who were unresponsive to their children's compliance also tended to ignore their noncompliant behaviors. It appears, then, that only the mothers of the older children took a consistent stand on compliance as an aspect of social conformity. This is particularly interesting in view of the fact that individual differences in the children's compliant behavior became much more consistent across situations and people at this later age.

TABLE 8

MOTHERS' REACTIONS TO THEIR CHILDREN'S COMPLIANCE OR NONCOMPLIANCE IN THE HOME AND THE OCCURRENCE OF COMPLIANCE OUTSIDE THE HOME

Maternal Reactions	*Object of Compliance at Fels Institute*	*Rho*	*p*
Nursery School Children			
1. Rewarding compliance	Peers	.24	ns
2. Punishing noncompliance ..	Peers	.20	ns
3. Rewarding compliance	Adults	.27	ns
4. Punishing noncompliance ..	Adults	.19	ns
Day Camp Children			
1. Rewarding compliance	Peers	.45	.01
2. Punishing noncompliance ..	Peers	.40	.05
3. Rewarding compliance	Adults	.54	.01
4. Punishing noncompliance ..	Adults	.27	ns

Table 8 presents relationships between the mothers' reactions to their children's compliance and noncompliance in the home and the degree of social compliance exhibited by these children at the Fels Institute. Again, the data have been analyzed separately for the Nursery School children and for the Day Camp children, as well as with respect to peer- and adult-interactions at Fels. Two trends are evident: First, while the differences are small, in every instance, the mothers' rewarding of compliance predicts their children's behavior better than the punishing of noncompliance. This trend is a provocative one if substantiated in future research. Reward ap-

pears to be more effective than punishment as a technique of parental influence in the development of children's social compliance. This finding is in accord with the reports by Sears and his colleagues (4) that maternal rewards, as a socialization technique, were more effective than punishment for changing young children's dependent and aggressive behaviors.

Second, there are clear-cut differences between the correlations for the Nursery School and Day Camp children. At the earlier ages, neither maternal rewards for compliance nor punishments for noncompliance are significantly associated with the degree that these younger children exhibit social compliance outside the home; maternal reinforcements do not predict these children's social compliance. In contrast, the mothers' reactions to the older children predict the amount of social compliance of these children outside the home in three or four correlations. By early grade school age, mothers' socialization attempts do seem to affect their children's general social compliance; before that they do not—or at least there is no evidence in the present study that they do.

Why should maternal reactions to children's compliance and noncompliance predict better at the older ages? The data provide no information; we can only speculate. One possibility rests on the fact that societal and parental expectations change for children as they grow older. For example, hostility, egocentric behavior, and noncompliance are accepted in our society —at least to some degree—as a natural part of young children's social behavior. However, as children mature and leave mother and home for the broader social experiences of school, they are expected to behave as more socialized, cooperative organisms. These general societal expectations for children's behavior at various ages obviously have their impact on parents. To the degree that parents feel their children to be extensions of themselves, and to the degree that the parents are sensitive to social pressures, they may develop increased concern with their children's social behavior as the children grow older. Parents who themselves value social compliance, either positively or out of a fear of rejection, might now begin to more strongly reward their children's compliant behaviors and punish their noncompliant activities. Other parents, for whom social conformity is less important, will be less concerned with this aspect of their children's social development, and will probably less frequently either reward compliance or punish noncompliance. In other words, differential parental concern may well determine parents' immediate reactions to their children's behavior. These parental reactions, in turn, are major sources of social reinforcements for the children and should, in time, influence the development of the children's social compliance. Parental rewards and punishments obviously affect children's immediate face-to-face compliance with their parents' commands and suggestions. In addition, in time, these parental reactions should also influence the children's social compliance when the parents are no longer present as potential reinforcers. This may transpire because parental reactions not only provide children with cues upon which to base their expecta-

tions of receiving rewards or punishments from their parents, but also because such parental reactions establish more generalized expectations in children. Parents are, after all, major transmitters and interpreters of social values to their children. Children, taking cues from parental reactions, develop and incorporate attitudes and expectations concerning the value of various social behaviors, including social compliance. These expectations can, in time, play an important part in determining the quality and degree of social compliance which the children exhibit outside the home when parents are no longer present. As the children's attitudes, values, and expectations become internalized, they may ultimately influence the children's proclivity toward social compliance or noncompliance as did original parental rewards and punishments for social compliance in previous situations. As internalization transpires, the children should exhibit more generalized and consistent compliance or noncompliance across persons and situations than was evident before this social learning occurred. In other words, through internalization, children's social compliance should become less situationally-determined and more the product of the child himself. The present study did find social compliance and noncompliance to be more generalized and consistent in older children. However, our speculations on the role of internalization in this process are *post hoc* ones and must await the test of future research.

Summary

The present study was concerned with the development of individual differences in young children's social compliance. Two groups of children were studied, a nursery school-age group and a group of six-, seven-, and eight-year-olds. Observers rated and Q-sorted the children's free-play social behaviors as these occurred for the younger group in a nursery school setting and, for the older children, in a day camp. Another observer rated the children's behavior with their mothers in their homes, and the mothers' reactions to this behavior. Relationships among these data were analyzed. These general results were obtained: (a) Sex and intelligence was unrelated to degree of social compliance. (b) Quality of social compliance changed with age. Peer-compliance at nursery school age transpired in a give-and-take atmosphere while peer-compliance in the older children was strongly associated with a general tendency toward low aggression and dominance. (c) The degree of compliance of the older children was more generalized and consistent across situations (from home to Day Camp) and across people (peers vs. adults) than was that of the nursery school age children. (d) In general, maternal rewards for compliance predicted the children's social compliance outside the home better than did maternal punishments for noncompliance. (e) The reactions of the mothers of the older children, both in respect to rewarding compliance and punishing noncompliance, predicted their children's extra-home social compliance to a much greater

degree than did the reactions of the mothers of the nursery school age children. (f) Degree of reward for compliance and punishment for non-compliance were positively and significantly related in the mothers of the older children while no relationship was found between these reactions in the mothers of the younger children. Implications of these results were discussed.

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VISUAL PERCEPTION OF STUTTERERS AND NONSTUTTERERS

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Although volumes of material have been produced in an effort to explain the phenomenon of stuttering, some areas have failed to attract serious investigation. One such area is that dealing with visual perceptual abilities.

As early as 1915, Swift (5) lectured on what he felt was a disorganization inherent in the visual thinking of stutterers. He initially asked 20 stutterers and 20 nonstutterers the question, "Where do you live?" He followed this by asking them to say "The dog ran across the street." The subjects were then asked to state whether there was any picture evoked in their minds while doing the above tasks and whether the picture was detailed, intense or weak. He noted that all of his normal individuals visualized clearly before and during speech. His stutterers had noticeable difficulty. Only seven reported visualization to his first question. Five visualized well while saying his second statement. All but one of the latter group were under treatment and all of the former group were receiving help. The rest of the subjects had difficulty in visualizing.

In an expanded study following this pilot study, Swift concluded that stuttering severity and ability to visualize are negatively correlated. Swift hypothesized on the basis of his results that this difficulty was caused by some disturbance in the cuneus or visualization area (2). His recommendation was to stimulate the function of picturization in stutterers during therapy.

More recently Bleumel (1) has also written of a thought disturbance in stutterers. Although he assigns primary importance to the breakdown occurring in verbal thought, he also believes there is a blocking during silent thought. This may produce a paralytic-like visual image of a word

resulting in an inability to make sounds. He advises exercises in silent thinking and verbal thinking during therapy. Although he has not ascribed the primary reason to faulty visual imagery, there is some indication of this being somehow involved.

The inferences of the above authors were evaluated in this study. A possible disturbance in visual thinking of stutterers was tested by a study of the closure and figure-background abilities of a matched group of stutters and nonstutterers.

Procedure

Subjects

Twenty stutterers and 20 nonstutterers were matched on the basis of sex, age, race, mental age, intelligence, vision, and hearing. The mean age of both the stutterers and nonstutterers was nine years, four months. There were 16 boys and four girls in both the experimental and control groups. Each member of the experimental group was matched with his control within six months of mental age. Matching on the basis of IQ was such that no subject differed from his control by more than five points.

Selection of the stutterers was done through a survey in which the speech of every pupil in one school district was observed in a classroom situation. Forty children out of approximately 4,300 were diagnosed as stutterers. Only 20 of the stutterers could be suitably matched on the basis of the previously stated criteria with normal children who did not stutter.

Materials

A Keystone Tachistoscope was used for testing visual perception. Seventeen pictures were shown on glass slides at one-fifth of a second and again at one-half of a second. Eight of the slides were pictures used for testing figure-ground responses in a study described by Warner and Strauss (6). The responses for the figure-ground pictures were classified into six categories: Correct Figure, Correct Figure-Ground, Wrong Figure, Wrong Figure-Ground, Ground, No Response. The responses for the closure pictures were placed into two scoring categories: Correct Closure and Wrong Closure.

It was also considered important to study the case histories of the samples. Items used in the case history were taken for the most part from a form suggested by Myklebust (3). A practicing obstetrician designated items indicative of possible brain damage. These included traumatic or congenital physiological instances during prenatal, paranatal or postnatal periods. In addition, a psychiatrist noted items on the case history suggestive of behavioral and/or personality problems. Items included were past familial instances of emotional disturbances as well as behavioral manifestations commonly associated with emotional disturbances. Tabulation of each of these signs was then made for each group.

Results

No fundamental differences in figure-background and closure abilities were found: none of the *t* values reached the 5 per cent level of confidence. These negative findings hold regardless of the exposure time, i.e., whether one-fifth or one-half second. The results fail to substantiate any inference that a disorganization exists in stutterers similar to that found in known brain-damaged cases. Further, inasmuch as such a disorganization is symptomatic of a visual disturbance in the thought process, the results fail to substantiate either Swift or Bluemel's earlier notions. It of course might be argued that this study in reality measured only the receptive capacity for visual perception of the two groups.[1] If this contention is true, then it would be important to study the visual expression or inner visual thought of stutterers.

Of further interest was the possibility that there might exist between the two groups some fundamental differences in terms of signs of brain damage or emotional disturbance. The two groups were compared using the sign test. The difference between the groups in neither area was statistically significant. The failure to demonstrate differences in these areas could, of course, be due to the fact that the present case history is not a valid instrument for noting subtle but important differences.

Summary

No important differences were noted between nonstutterers and stutterers in a study of their visual perceptual abilities. The two groups were essentially the same with respect to their case histories. Swift's original hypothesis of a negative relationship between stuttering severity and ability to visualize was not supported.

References

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[1] Suggested by Dr. Richard Schiefelbusch, University of Kansas.